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ABSTRACT

Schools or districts that have articulated their educational goals but whose students are not satisfactorily achieving those goals may need assistance in improving their curriculum or their instructional techniques. This document consists of three units designed to help a group of educators develop plans for such improvements. The first unit covers the identification of performance goals, measurement techniques and criteria, and student populations. The purpose of making these identifications is to permit comparisons of ideal and current performances. Unit two builds on the first unit's definition of needs to compare the required elements of curriculum and instruction with those currently in use. These elements include curriculum content, content sequencing, instructional strategies, and support systems. The third unit provides information on planning for a search for means of improvement, and presents guidelines for conducting the search. A planning coordinator's manual is also included in the document to assist the leader of the planning group. The document provides numerous forms and charts to be used in the planning process. (Author/PGD)

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Curriculum and Instruction

Planning Improvement

Introduction

EA 011 735

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Introduction

Developed by
Sharon Tumulty

Research for Better Schools, Inc.
Robert G. Scanlon, Executive Director
April, 1978

ACKNOWLEDGEMENTS

This package has benefited from the cooperation and constructive recommendations of many RBS staff members. Patricia Gump, Mark Blum, and a number of other staff directly involved in the creation and refinement of curriculum materials generously shared their knowledge of the curriculum design process. Hsuan DeLorme assisted with revisions to the third unit, following a limited tryout. Rodney Ball, Mary V. Brown, Michael Marvin, Richard McCann, Sanford Temkin, and many other in-house reviewers made helpful suggestions for the improvement of the package.

The comments and recommendations of the administrators, teachers, and university consultants involved in tryouts of the package contributed substantially to its development. Representatives from the Neshaminy School District in Langhorne, Pennsylvania and the Mount Pleasant School District in Wilmington, Delaware participated in the limited tryout of the package. Dr. A. J. Fiorino and Dr. Jeannette Gallagher of Temple University in Philadelphia, Pennsylvania and Ms. Sharon Sallows from the University of Pennsylvania in Philadelphia served as expert reviewers. Representatives from the Carino Center, Philadelphia, Pennsylvania; Chatham Township School District, Chatham, New Jersey; Hammonton School District, Hammonton, New Jersey; Lower Cape May Regional School District, Cape May, New Jersey; and Morris Plains School District, Morris Plains, New Jersey participated in the field test of the package. The package was also used by school districts participating in the Evaluation of Planning, Management, and Evaluation Strategies for School Improvement Project. Dr. Mauritz Johnson of the State University of New York at Albany; Dr. Joseph DeRenzis from Colonial School District, Plymouth Meeting, Pennsylvania; and Dr. Glenys Unruh from the School District of University City, University City, Missouri served as expert reviewers.

Patricia Hall, Carol Crociante, and Sheila Marshall typed numerous drafts and revisions of the package. Theresa Haskins composer set the package. The layout was done by Judith Barbour. The illustrations were prepared by John Nearing.

INTRODUCTION

The purpose of this package is to help a representative group from a school or school district develop plans for the improvement of curriculum and/or instruction. Using the package, the group should be able to:

- Develop a clear and substantial statement of their school system's student needs,
- Identify a set of requirements for improving curriculum and/or instruction based upon those student needs,
- Establish plans for conducting a search for means of improving curriculum and/or instruction, when appropriate means are not known or available to their school or district.

The package assumes that the school or district has already articulated its educational goals. It also assumes that the school or district has collected current student performance data which suggests that students are not satisfactorily achieving some of those goals.

OVERVIEW OF THE PACKAGE

This package is organized in two major parts. The first part, titled **Curriculum and Instruction: Planning Improvement**, contains the instructional materials used by the group as they develop specific plans for the improvement of curriculum and/or instruction in their school system. The second part, titled **Curriculum and Instruction: A Guide to Alternatives**, is an optional reference guide which can be used to search for means of improving curriculum and/or instruction.

Planning Improvement contains three instructional units. Each of the three units deals with an important planning task:

Unit 1: Developing the Need Definition

The planning task is to draft an organized description of desired and current student performance.

Unit 2: Establishing Improvement Requirements

The planning task is to specify required improvements in curriculum and/or instruction.

Unit 3: Planning and Conducting the Search

The planning task is to locate means of improving curriculum and/or instruction.

Explanatory text and examples are provided in every unit. As the planning group works through a unit, they apply the contents of the unit to their own situation. They use information sheets embedded in the text to record their decisions and findings.

Planning Improvement also contains a separate manual for the individual from the school system who acts as coordinator of group planning activities. The coordinator's manual includes practical guidelines for organizing the planning effort and specific procedures for managing group planning activities.

A Guide to Alternatives is basically a descriptive catalogue of sources of information and products. It is organized in four volumes: the first is devoted to student learning materials, the second to administrative and staff development, the third to resource allocation, and the fourth to a master index of all entries in the three preceding volumes.

PRACTICAL CONSIDERATIONS

Appropriate Users

This package is primarily intended for use by a small but representative group from a school system. There is, however, no reason why it could not be used effectively by a single individual.

Planning Coordinator

If the package is used by a group, one individual from the school system should be chosen to act as group coordinator. The group coordinator has primary responsibility for

organizing and managing group planning activities. A capable coordinator is critical to the successful use of this package. Interpersonal skills, credibility with other staff, experience in managing resources, problem-solving, and communication, as well as familiarity with the day-to-day operations of the school system are highly desirable in a coordinator. The coordinator has to integrate the efforts of the different individuals and groups involved in planning, so that there is a continuity to all planning decisions made. The coordinator also supervises the construction and revision of all planning documents before submitting them for acceptance, approval, or further action.

Costs

There are no special costs associated with the use of this package. Arranging to free staff for group planning sessions is not ordinarily a problem. In-service days, released time from instructional duties, and substitutes are possible means of overcoming any schedule conflicts. Access to secretarial and clerical help is highly desirable, as the group will need drafts and duplicate copies of various planning documents as they work through the package.

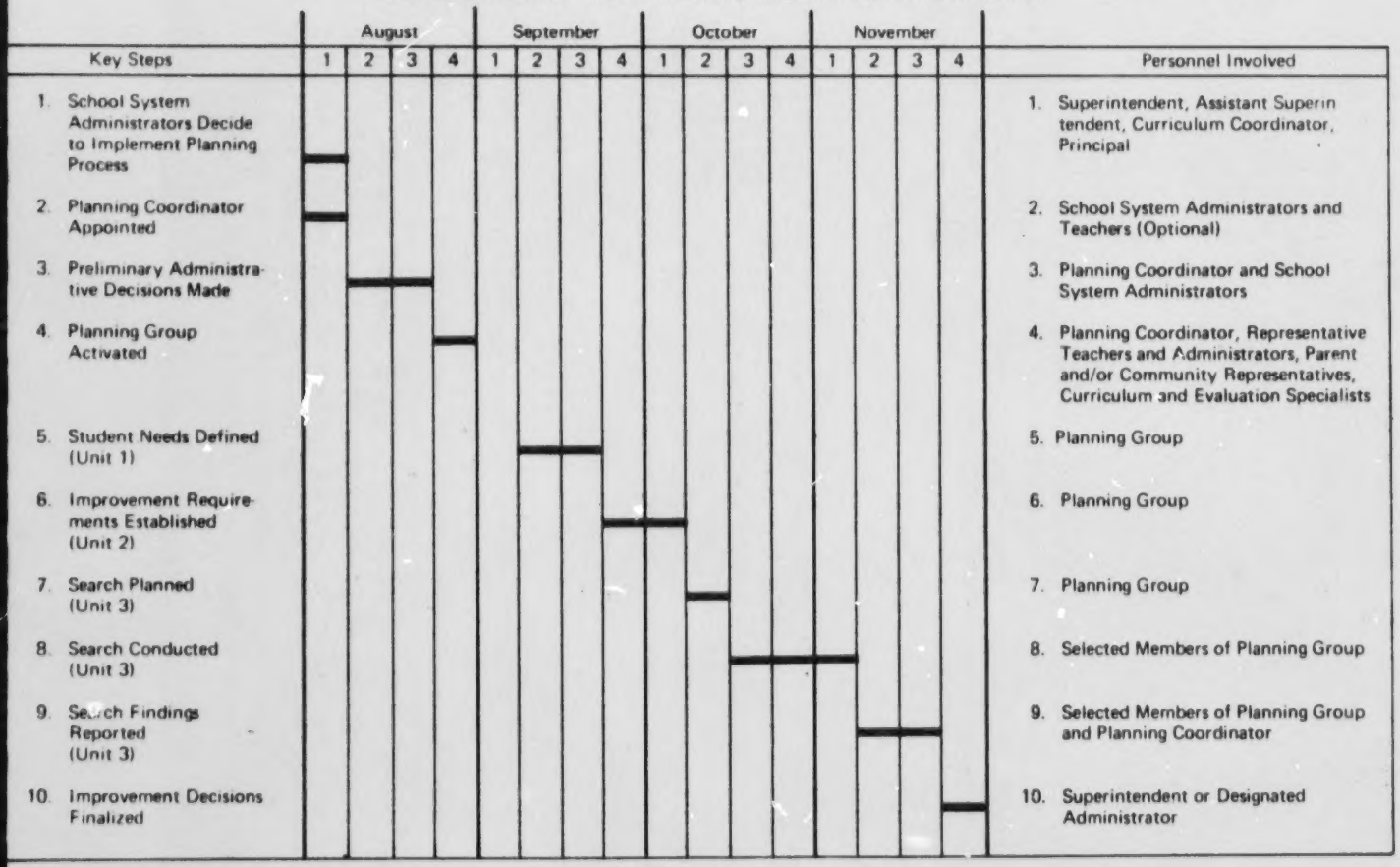
Other Participants

To take full advantage of the package, a variety of individuals and groups from the school system should be encouraged to participate in the planning process. The package offers many opportunities for direct and indirect input to decision making by educators, parents, community members, students, consultants, and other groups and individuals. The nature and extent of their participation should be determined by the coordinator in consultation with administrative staff from the school system and perhaps other members of the planning group.

Schedule

School systems under extreme and immediate pressure to modify current practice will not be able to make effective use of this package. It is possible to work through the instructional units in an intensive three to five day workshop, if student performance data has been carefully summarized in advance and if each group member is already thoroughly familiar with the contents of the package. It is best, however, if the planning group's use of the package is scheduled over a more extended period of time, allowing for the collection of supplementary information, for securing opinions or approvals, etc. Additional time is required to actually conduct a search for means of improvement. The amount of time allotted for the search will vary according to the individual school system's needs and constraints. A sample implementation schedule appears on the next page:

SAMPLE IMPLEMENTATION SCHEDULE (4 MONTHS PLANNING EFFORT)



Key Steps	Personnel Involved
1. School System Administrators Decide to Implement Planning Process	1. Superintendent, Assistant Superintendent, Curriculum Coordinator, Principal
2. Planning Coordinator Appointed	2. School System Administrators and Teachers (Optional)
3. Preliminary Administrative Decisions Made	3. Planning Coordinator and School System Administrators
4. Planning Group Activated	4. Planning Coordinator, Representative Teachers and Administrators, Parent and/or Community Representatives, Curriculum and Evaluation Specialists
5. Student Needs Defined (Unit 1)	5. Planning Group
6. Improvement Requirements Established (Unit 2)	6. Planning Group
7. Search Planned (Unit 3)	7. Planning Group
8. Search Conducted (Unit 3)	8. Selected Members of Planning Group
9. Search Findings Reported (Unit 3)	9. Selected Members of Planning Group and Planning Coordinator
10. Improvement Decisions Finalized	10. Superintendent or Designated Administrator

Unit 1

Developing the Need Definition

Developed by
Sharon Tumulty

Research for Better Schools, Inc.
Robert G. Scanlon, Executive Director
April, 1978

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INTRODUCTION

Your school system has identified certain student needs and has formed a planning group to determine what improvements in curriculum and/or instruction may be necessary to address those needs. This unit is designed to help the planning group define the exact nature and extent of the school system's student needs as a basis for choosing appropriate means of improvement.

A student need is a gap which exists between desired student performance and current student performance. Student needs are always defined in terms of student behavior. Awareness of a student need usually begins with data on current student performance which suggests that certain populations of students are not meeting the performance standards of the school system.

Your coordinator has prepared a preliminary need definition to insure that the group has a common starting point for planning. After reviewing the preliminary need definition, your task will be to work with the coordinator in developing a refined need definition.

There are three major elements your planning group will have to consider in developing the need definition:

- **Types of Student Performance** – The performance goals the school system wants its students to achieve.
- **Performance Standards** – Standards for assessing student achievement of those performance goals, including representative student behaviors, sources of data, and measurement criteria.
- **Student Populations** – Various groups and sub-groups of students involved and their characteristics.

Immediately following is an example which illustrates how each of these elements figures in a refined need definition. A paired set of charts has been used to present the example. The first chart illustrates the definition of desired student performance. The second chart illustrates the definition of current student performance.

Stop now and review the example of a refined need definition provided on pages 1-2 and 1-3.

DESIRED STUDENT PERFORMANCE

TYPES OF PERFORMANCE	PERFORMANCE STANDARDS			STUDENT POPULATIONS	
	Student Behaviors	Sources of Data	Measurement Criteria	Students Expected to Meet Standards	Characteristics
☑ BASIC SKILLS Students should: • Be able to perform basic arithmetic operations.	• Add whole numbers, fractions, decimals. • Subtract whole numbers, fractions, decimals. • Multiply whole numbers, fractions, decimals. • Divide whole numbers, fractions, decimals.	Standard Mathematics Achievement Test (Computation Sub-Test).	Student scores at or above the 50th percentile.	Total Population: 750 students, grades 4-6. At least half (375 students) should achieve scores at or above the 50th percentile. The remaining half (375 students) should achieve scores which fall between the 30th and 50th percentile.	Average range of ability and achievement. One-third of student population are children of seasonal labor force; remaining two-thirds blue collar, middle income.
☑ ATTITUDES Students should: • Have a positive attitude toward the study of mathematics.	• Find the study of math interesting.	Student Attitude Questionnaire.	Student rates math as "interesting" or better on a seven point scale questionnaire item.	At least 60% of the students in grades 4-6 should rate math "interesting" or better.	Many students (above average, average, and below average) seem to have indifferent attitudes toward the study of math.
	• Feel math has practical relevance to their daily activities.		Student rates math as "relevant" or better on a seven point scale questionnaire item.	At least 60% of the students in grades 4-6 should rate math "relevant" or better.	
☑ HIGHER ORDER PROCESSES Students should: • Be able to employ basic arithmetic operations in solving math problems.	• Solve word problems involving addition, subtraction, multiplication, and division of whole numbers, of fractions, and of decimals.	Standard Mathematics Achievement Test (Applications Sub-Test).	Student scores at or above the 50th percentile.	At least half (375 students) should achieve scores at or above the 50th percentile. At least 125 should achieve scores at or above the 40th percentile. At least 200 should achieve scores at or above the 30th percentile, with approximately 50 achieving scores below the 30th percentile.	Approximately one-third of the student population are students with reading problems.
	• Use math to solve practical problems, e.g., figure discounts, sales tax, and comparative price grocery items with accuracy.	Student Work Samples.	Accuracy level of 80% on student work samples consisting of practical problems involving the figuring of discounts, percentages, comparative pricing, etc.	75% of the students completing grade 6 should be able to figure discounts, sales tax, and comparative price grocery items.	There is evidence that a significant number of these students cannot use math to solve practical problems.

CURRENT STUDENT PERFORMANCE

	PERFORMANCE STANDARDS		STUDENT POPULATIONS		
Sources of Data	Student Behaviors	Measurement Criteria	Students Meeting Standards	Students Not Meeting Standards	Characteristics
Standard Mathematics Achievement Test (Computation Sub-Test)			275 students in grades 4-6 achieved scores which fell at or above the 50th percentile.	100 students achieved scores which fell at or above the 40th percentile. 275 students achieved scores which fell at or above the 30 percentile. 100 student achieved scores which fell at or above the 20th percentile.	Average range of ability and achievement. One-third of student population are children of seasonal labor force; remaining two-thirds blue collar, middle income.
Teacher Reports (Informal Poll of a Random Sample of Teachers)	• Students are indifferent toward the study of math.	Number of times students are inattentive in math class. Frequency of incomplete homework assignments in math.	About half of students are attentive. About half complete homework assigned on time.	About half are inattentive. About half do not complete homework assigned on time.	Students not meeting standards in this instance represent a cross-section of the total student population, with a full range of ability and interests.
Student Attitude Questionnaire			400 students rated math as "interesting" or better. 375 students rated math as "relevant" or better.	350 students did not rate math as "interesting" or better. 375 students did not rate math as "relevant" or better.	More than half of low achieving students indicated that they did not find math "interesting" or "relevant."
Standard Mathematics Achievement Test (Applications Sub-Test)	• Solve word problems involving addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals.	Mean score (50th percentile).	250 students achieved scores which fell at or above the 50th percentile.	125 students achieved scores which fell at or above the 40th percentile. 250 students achieved scores which fell at or above 30th percentile. 125 students achieved scores which fell at or below the 20th percentile.	The majority of students with scores at or below the 30th percentile are students with reading problems. Most are experiencing academic problems in other subject areas.
Questionnaire Survey of Parents	• Figure discounts. • Compute sales tax. • Comparative price grocery items.	Perceptions of parents regarding current student capabilities.	100 out of 200 parents surveyed indicated that the majority of students completing grade 6 can figure discounts, compute sales taxes, comparative price grocery items.	100 out of 200 parents surveyed indicated that the majority of students completing grade 6 cannot figure discounts, compute sales taxes, comparative price grocery items.	Parents were selected at random. It was not possible to ascertain the characteristics of the students referred to by individual respondents to the survey.
Student Work Samples			Of 200 students completing grade 6, 75 displayed 80% accuracy in solving practical math problems.	Of 200 students completing grade 6, 125 displayed less than 80% accuracy in solving practical math problems.	The students who displayed less than 80% accuracy included both average and below average achievers.

Your planning will begin with a review of the preliminary need definition prepared by your planning coordinator. This unit is designed to help you refine the coordinator's preliminary need definition into a more precise need definition similar to the example on pages 1-2 and 1-3. The unit presents five basic steps for refining a need definition:

1. Clarifying types of desired student performance.
2. Establishing standards for desired student performance.
3. Specifying the student populations expected to meet the performance standards.
4. Documenting current student performance.
5. Reviewing the need definition.

You will want to become familiar with each of these steps and their interrelationships before starting work in this unit. Take time to examine and discuss the case study on pages 1-5 to 1-26 before proceeding. The case study is based upon the example of a refined need definition presented on pages 1-2 and 1-3. It illustrates the step by step refinement of a need definition by a planning group, beginning with a preliminary need definition prepared by the coordinator.

Stop now and review the case study before continuing further in this unit.

CASE STUDY

THE SITUATION

Dissatisfaction with student performance on standardized achievement tests in mathematics and parent reports that many students were weak in consumer math skills motivated the Johnstown School District to form a curriculum planning group. The assistant superintendent for curriculum and instruction, the mathematics curriculum coordinator, and a principal and teacher from each of the three elementary schools in the district were chosen as members of the planning group, with the math curriculum coordinator agreeing to serve as chairperson for the group.

The planning group was charged with recommending specific ways in which the present mathematics curriculum and present instructional practice should be modified in order to promote improved student performance. The math coordinator, with the assistance of several members of the planning group, had prepared the following preliminary definition of student needs for discussion at their first meeting:

DESIRED STUDENT PERFORMANCE	CURRENT STUDENT PERFORMANCE
Students should be able to perform basic arithmetic operations.	Many students are not mastering basic computation skills of addition, subtraction, multiplication, and division. Data from the Standard Math Achievement Test indicates that 275 of 750 students in grades 4-6 achieved scores which fell at or above the 50th percentile; 475 achieved scores which fell below the 50th percentile.
Students should be able to apply math skills in practical consumer situations.	The questionnaire survey of parents revealed that 100 out of 200 parents responding to the survey felt that the majority of students completing grade 6 lacked basic consumer math skills.

STEP 1: CLARIFYING DESIRED STUDENT PERFORMANCE

All members of the planning group agreed that the preliminary need definition clearly emphasized the improvement of **Basic Skills.** Several members of the planning group also observed that poor student attitudes toward math appeared to be contributing to unsatisfactory student performance in basic skills. The group debated whether current student difficulties with basic skills led to poor student attitudes toward math or whether students did not find math interesting and relevant and therefore did not work at mastering basic skills. The planning group decided to expand Desired Student Performance to include **Student Attitudes.**

Group discussion then turned to the issue of consumer math skills. Some members of the group felt that the results of the questionnaire survey only reinforced the importance of stressing basic skills. The real test of student mastery of basic skills, they reasoned, was the ability of the student to apply those skills in practical situations. Other members of the group observed that consumer applications of math were emerging as a priority goal of federal, state, and community groups and would undoubtedly receive increased attention in the future. The assistant superintendent noted that one of the state's ten goals for education dealt with consumer skills, and that the survey of 6th grade parents had been designed to assess specific consumer skills suggested in the state guidelines: figuring discounts, computing sales taxes, and comparative pricing of grocery items.

Several group members expressed concern that student scores on the Applications Sub-Test of the Standard Mathematics Achievement Test had not been included in the preliminary need definition. Several teachers pointed out that many students with reading problems had achieved scores which fell significantly below the norm on the Applications Sub-Test and that word problems seemed to be a major area of difficulty.

After another round of discussion, the planning group decided that consumer applications of math did involve student mastery of basic skills as a pre-requisite, but that consumer applications deserved separate consideration as a distinct type of desired student performance. Finding a closer relationship between consumer and word problem applications, they decided that both should be included under **Higher Order Processes.**

DESIRED STUDENT PERFORMANCE

TYPES OF PERFORMANCE	PERFORMANCE STANDARDS			STUDENT POPULATIONS	
	Student Behaviors	Sources of Data	Measurement Criteria	Students Expected to Meet Standards	Characteristics
☑ **BASIC SKILLS** Students should: • Be able to perform basic arithmetic operations.					
☑ **ATTITUDES** Students should: • Have a positive attitude toward the study of mathematics.					
☑ **HIGHER ORDER PROCESSES** Students should: • Be able to employ basic arithmetic operations in solving math problems.					

CURRENT STUDENT PERFORMANCE

	PERFORMANCE STANDARDS		STUDENT POPULATIONS		
Source of Data	Student Behaviors	Measurement Criteria	Students Meeting Standards	Students Not Meeting Standards	Characteristics
Standard Mathematics Achievement Test (Computation Sub-Test)			275 students in grades 4-6 achieved scores which fell at or above the 50th percentile.	475 students achieved scores which fell below the 50th percentile.	
Standard Mathematics Achievement Test (Applications Sub-Test)	• Solve word problems involving addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals.	Mean score (50th percentile).	250 students achieved scores which fell at or above the 50th percentile.	125 students achieved scores which fell at or above the 40th percentile. 250 students achieved scores which fell at or above the 30th percentile. 125 students achieved scores which fell at or below the 20th percentile.	
Questionnaire Survey of Parents	• Figure discounts. • Compute sales tax. • Comparative price grocery items.	Perceptions of parents regarding current student capabilities.	100 out of 200 parents surveyed indicated that the majority of students completing grade 6 can figure discounts, compute sales taxes, comparative price grocery items.	100 out of 200 parents surveyed indicated that the majority of students completing grade 6 cannot figure discounts, compute sales taxes, comparative price grocery items.	Parents were selected at random. It was not possible to ascertain the characteristics of the students referred to by individual respondents to the survey.

STEP 2: ESTABLISHING STANDARDS FOR DESIRED STUDENT PERFORMANCE

The planning group had little difficulty in establishing performance standards for Basic Skills. They decided to draw on the continuum of math objectives used to structure their present curriculum for representative student behaviors. The Standard Mathematics Achievement Test had been selected by the school system because it provided a comprehensive sampling of the student behaviors included in the math continuum. It was agreed that the student population was sufficiently similar to the population against which the Standard Math Achievement Test had been normed to justify using the mean score (50th percentile) as a measurement criterion.

In setting performance standards for Student Attitudes, they debated whether or not it was necessary to spell out the student behaviors involved. One group member argued that student interest in math was an essential behavior. Another argued that having students perceive math as being relevant to their daily activities was just as essential. Some members of the planning group expressed concern that the behaviors suggested were perhaps too ill-defined to be useful. Nonetheless, the planning group proceeded to choose student questionnaire ratings of math in terms of "interest" and "relevance" as appropriate measurement criteria.

There was little discussion of performance standards appropriate for judging student application of basic arithmetic operations in solving math problems. Representative student behaviors were excerpted from the math continuum. The Applications Sub-Test of the Standard Math Achievement Test, which heavily emphasized word problems, was judged to adequately sample the student behaviors selected from the continuum.

Student behaviors related to consumer applications had been chosen from a comprehensive set of objectives outlined in a National Study Commission Report and incorporated in the parent questionnaire survey. The planning group felt the behaviors were sufficiently representative, but some group members had reservations about specifying the parent questionnaire survey as a source of data for desired student performance. They expressed concern that the survey data would consist of parental perceptions of student performance. It could be highly subjective and sometimes based on unvalidated personal opinion rather than on factual information about student performance. Therefore, no specific sources of data or measurement criteria, apart from observable student behaviors, were defined by the planning group.

DESIRED STUDENT PERFORMANCE

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☑ **ATTITUDES** Students should: • Have a positive attitude toward the study of mathematics.	• Find the study of math interesting.	Student Attitude Questionnaire.	Student rates math as "interesting" or better on a seven point scale questionnaire item.		
	• Feel math has practical relevance to their daily activities.		Student rates math as "relevant" or better on a seven point scale questionnaire item.		
☑ **HIGHER ORDER PROCESSES** Students should: • Be able to employ basic arithmetic operations in solving math problems.	• Solve word problems involving addition, subtraction, multiplication, and division of whole numbers, of fractions, and of decimals.	Standard Mathematics Achievement Test (Applications Sub-Test).	Student scores at or above the 50th percentile.		
	• Use math to solve practical problems, e.g., figure discounts, sales tax, and comparative price grocery items with accuracy.				

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STEP 3: SPECIFYING STUDENT POPULATIONS EXPECTED TO MEET STANDARDS

The planning group found that they had only limited background information on the characteristics of their overall student population (750 students, grades 4-6). Their estimate of how many students should be expected to achieve scores at or above the 50th percentile was based on that student population's previous year's performance in basic skills and applications on the Standard Math Achievement Test, and on the performance of similar student populations in neighboring districts. It was determined that at least half of the total student population (375 students) should achieve scores which fell at or above the 50th percentile.

The planning group decided that all students should have a positive attitude toward math, and therefore all should rate math as "interesting" and "relevant." Some members of the planning group seriously questioned whether all students, particularly those students with a history of academic problems could be expected to rate math as "interesting" and "relevant." One teacher pointed out that the group was setting standards for desired student performance, which should represent the ideal. Another argued that student characteristics ought to qualify performance standards if the standards were to be realistically attainable, and that evidence of student indifference toward math should at least be documented by the planning group.

The planning group noted that a large portion of the student population in grade 6 apparently lacked consumer math skills necessary to solve practical problems such as figuring discounts, etc. They felt, however, that a minimum of 75% of the students completing grade 6 ought to be able to figure discounts, compute sales taxes, and compare grocery item prices.

DESIRED STUDENT PERFORMANCE

TYPES OF PERFORMANCE	PERFORMANCE STANDARDS			STUDENT POPULATIONS	
	Student Behaviors	Sources of Data	Measurement Criteria	Students Expected to Meet Standards	Characteristics
☑ **BASIC SKILLS** Students should: • Be able to perform basic arithmetic operations.	• Add whole numbers, fractions, decimals. • Subtract whole numbers, fractions, decimals. • Multiply whole numbers, fractions, decimals. • Divide whole numbers, fractions, decimals.	Standard Mathematics Achievement Test (Computation Sub-Test).	Student scores at or above the 50th percentile.	At least half (375 students) should achieve scores at or above the 50th percentile.	Average range of ability and achievement. One-third of student population are children of seasonal labor force; remaining two-thirds blue collar, middle income.
☑ **ATTITUDES** Students should: • Have a positive attitude toward the study of mathematics.	• Find the study of math interesting.	Student Attitude Questionnaire.	Student rates math as "interesting" or better on a seven point scale questionnaire item.	All 750 students should rate math "interesting" or better.	Many students (above average, average, and below average) seem to have indifferent attitudes toward the study of math.
	• Feel math has practical relevance to their daily activities.		Student rates math as "relevant" or better on a seven point scale questionnaire item.	All 750 students should rate math "relevant" or better.	
☑ **HIGHER ORDER PROCESSES** Students should: • Be able to employ basic arithmetic operations in solving math problems.	• Solve word problems involving addition, subtraction, multiplication, and division of whole numbers, of fractions, and of decimals.	Standard Mathematics Achievement Test (Applications Sub-Test).	Student scores at or above the 50th percentile.	At least half (375 students) should achieve scores at or above the 50th percentile.	
	• Use math to solve practical problems, e.g., figure discounts, sales tax, and comparative price grocery items with accuracy.			75% of the students completing grade 6 should be able to figure discounts, sales tax, and comparative price grocery items.	There is evidence that a significant number of these students cannot use math to solve practical problems.

CURRENT STUDENT PERFORMANCE

	PERFORMANCE STANDARDS		STUDENT POPULATIONS		
Sources of Data	Student Behaviors	Measurement Criteria	Students Meeting Standards	Students Not Meeting Standards	Characteristics
Standard Mathematics Achievement Test (Computation Sub-Test)			**275 students in grades 4-8 achieved scores which fell at or above the 50th percentile.**	**475 students achieved scores which fell below the 50th percentile.**	
Standard Mathematics Achievement Test (Applications Sub-Test)	• Solve word problems involving addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals.	Mean score (50th percentile).	250 students achieved scores which fell at or above the 50th percentile.	125 students achieved scores which fell at or above the 40th percentile. 250 students achieved scores which fell at or above the 30th percentile. 125 students achieved scores which fell at or below the 20th percentile.	
Questionnaire Survey of Parents	• Figure discounts. • Compute sales tax. • Comparative price grocery items.	Perceptions of parents regarding current student capabilities.	100 out of 200 parents surveyed indicated that the majority of students completing grade 6 can figure discounts, compute sales taxes, comperative price grocery items.	100 out of 200 parents surveyed indicated that the majority of students completing grade 6 cannot figure discounts, compute sales taxes, comperative price grocery items.	Parents were selected at random. It was not possible to ascertain the characteristics of the students referred to by individual respondents to the survey.

STEP 4: DOCUMENTING CURRENT STUDENT PERFORMANCE

The planning group had already considered some of the available data on current student performance in their discussion of desired student performance. Rather than simply document that 475 students had achieved scores which fell below the 50th percentile, they refined the basic skills data provided in the coordinator's preliminary need definition to indicate how many students had achieved scores which fell at or above the 40th, 30th, and 20th percentiles on the Standard Math Achievement Test. They also reviewed the scores of students on the Applications Sub-Test of the Standard Math Achievement Test, which had been grouped in a similar manner. Finally, they analyzed teacher profiles of the characteristics of students with scores at or below the 30th percentile and discovered that the majority were students with reading problems. Most of the students with scores at or below the 30th percentile were found to be experiencing problems in other academic areas.

Following their review of student scores on the Computation and Applications Sub-Tests, the planning group decided that the student performance expectations they had previously established should be refined. They proceeded to specify the number of students whom they felt could reasonably be expected to achieve scores at or above different percentiles lower than the 50th percentile.

The planning group had already reviewed data from the questionnaire survey of parents. The student behaviors (figuring discounts, computing sales taxes, and comparing grocery item prices) which the survey had asked parents to consider were essentially the same as those specified as standards for desired student performance.

Preliminary data on current student attitudes toward math came primarily from teacher reports, based on an informal poll of a random sample of teachers. Teachers reporting on their students' attitudes were asked to note instances in which students appeared indifferent toward the study of math. Frequency of student inattention and incomplete homework assignments had been suggested as criteria for gauging student indifference and most teachers appeared to have used both criteria in their observations of students. The planning group was able to document that teachers reported that approximately half of their students were attentive and half were not; that half completed homework assignments and half did not. There was some concern among members of the planning group that close definition of student populations who were/were not attentive, who did/did not complete homework assigned was not possible, since teachers had been polled in an informal and random manner.

The planning group reviewed the results of the questionnaire survey. They noted that 100 out of 200 parents contacted in the survey perceived that the majority of students completing grade 6 could not (1) figure discounts, (2) compute sales taxes, and (3) comparatively price grocery items. The math team leader pointed out that the survey data did not really allow them to determine which students in grade 6 were meeting and which were not meeting performance standards, but only which parents felt students could figure discounts, etc., and which felt students could not.

DESIRED STUDENT PERFORMANCE

TYPES OF PERFORMANCE	PERFORMANCE STANDARDS			STUDENT POPULATIONS	
	Student Behaviors	Sources of Data	Measurement Criteria	Students Expected to Meet Standards	Characteristics
				Total Population: 750 students, grades 4-6.	
☑ BASIC SKILLS Students should: • Be able to perform basic arithmetic operations.	• Add whole numbers, fractions, decimals. • Subtract whole numbers, fractions, decimals. • Multiply whole numbers, fractions, decimals. • Divide whole numbers, fractions, decimals.	Standard Mathematics Achievement Test (Computation Sub-Test).	Student scores at or above the 50th percentile.	At least half (375 students) should achieve scores at or above the 50th percentile. The remaining half (375 students) should achieve scores which fall between the 30th and 50th percentile.	Average range of ability and achievement. One-third of student population are children of seasonal labor force; remaining two-thirds blue collar, middle income.
☑ ATTITUDES Students should: • Have a positive attitude toward the study of mathematics.	• Find the study of math interesting.	Student Attitude Questionnaire.	Student rates math as "interesting" or better on a seven point scale questionnaire item.	All 750 students should rate math "interesting" or better.	Many students (above average, average, and below average) seem to have indifferent attitudes toward the study of math.
	• Feel math has practical relevance to their daily activities.		Student rates math as "relevant" or better on a seven point scale questionnaire item.	All 750 students should rate math "relevant" or better.	
☑ HIGHER ORDER PROCESSES Students should: • Be able to employ basic arithmetic operations in solving math problems.	• Solve word problems involving addition, subtraction, multiplication, and division of whole numbers, of fractions, and of decimals.	Standard Mathematics Achievement Test (Applications Sub-Test).	Student scores at or above the 50th percentile.	At least half (375 students) should achieve scores at or above the 50th percentile. At least 125 should achieve scores at or above the 40th percentile. At least 200 should achieve scores at or above the 30th percentile, with approximately 50 achieving scores below the 30th percentile.	Approximately one-third of the student population are students with reading problems.
	• Use math to solve practical problems, e.g., figure discounts, sales tax, and comparative price grocery items with accuracy.			75% of the students completing grade 6 should be able to figure discounts, sales tax, and comparative price grocery items.	There is evidence that a significant number of these students cannot use math to solve practical problems.

CURRENT STUDENT PERFORMANCE

	PERFORMANCE STANDARDS		STUDENT POPULATIONS		
Sources of Data	Student Behaviors	Measurement Criteria	Students Meeting Standards	Students Not Meeting Standards	Characteristics
Standard Mathematics Achievement Test (Computation Sub-Test)			275 students in grades 4-6 achieved scores which fell at or above the 50th percentile.	100 students achieved scores which fell at or above the 40th percentile. 275 students achieved scores which fell at or above the 30th percentile. 100 students achieved scores which fell at or above the 20th percentile.	Average range of ability and achievement. One-third of student population are children of seasonal labor force; remaining two-thirds blue collar, middle income.
Teacher Reports (Informal Poll of a Random Sample of Teachers)	• Students are indifferent toward the study of math.	Number of times students are inattentive in math class. Frequency of incomplete homework assignments in math.	About half of students are attentive. About half complete homework assigned on time.	About half are inattentive. About half do not complete homework assigned on time.	Students not meeting standards in this instance represent a cross-section of the total student population, with a full range of ability and interests.
Standard Mathematics Achievement Test (Applications Sub-Test)	• Solve word problems involving addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals.	Mean score (50th percentile).	250 students achieved scores which fell at or above the 50th percentile.	125 students achieved scores which fell at or above the 40th percentile. 250 students achieved scores which fell at or above the 30th percentile. 125 students achieved scores which fell at or below the 20th percentile.	The majority of students with scores at or below the 30th percentile are students with reading problems. Most are experiencing academic problems in other subject areas.
Questionnaire Survey of Parents	• Figure discounts. • Compute sales tax. • Comparative price grocery items.	Perceptions of parents regarding current student capabilities.	100 out of 200 parents surveyed indicated that the majority of students completing grade 6 can figure discounts, compute sales taxes, comparative price grocery items.	100 out of 200 parents surveyed indicated that the majority of students completing grade 6 cannot figure discounts, compute sales taxes, comparative price grocery items.	Parents were selected at random. It was not possible to ascertain the characteristics of the students referred to by individual respondents to the survey.

STEP 5: REVIEWING THE NEED DEFINITION

Having worked through the first four steps of need definition, the planning group decided to stop and assess the adequacy of their data. They began with desired student performance. They decided that they were still somewhat uncomfortable with the vagueness of the student behaviors chosen to represent positive attitudes toward the study of math. If student self-report questionnaires were used as a method of measurement, however, they felt that the behaviors would suffice as indicators of positive student attitudes. The planning group noted that measurement critieria had not yet been specified for practical consumer math skills. They first considered the possibility of using parent and teacher perceptions as criteria for measuring student ability to solve practical consumer problems. They eventually decided that the accuracy of student work samples would provide a more immediate and probably more valid criterion, and set a minimum accuracy level of 80%.

An extended discussion ensued over the reasonableness of expecting all students to develop positive attitudes toward the study of math. Considering that many students currently appeared indifferent toward math, the planning group reduced the population of students expected to rate math as "interesting" and "relevant" from all students to "at least 60% of the students in grades 4-6."

There was further discussion as to whether or not 75% of the students completing sixth grade should be expected to figure discounts, compute sales taxes, and compare grocery item prices with 80% accuracy. One group member argued that consumer math skills were critical for economic survival in contemporary society, and that all students should be expected to master those skills. Others, however, cited the results of the questionnaire survey which showed that one out of two parents polled felt that the majority of students currently lacked those skills. The group decided to let the 75% figure stand.

Turning to current student performance, the planning group found that additional data on student attitudes and consumer skills was required. Teacher reports on student attitudes, they felt, provided data that was too general to be helpful. Further, the performance standards teachers had been asked to use (teacher reports of the frequency of student inattentiveness and incomplete homework assignments) did not correspond with the standards set for desired student performance (student self-reports in the form of questionnaire ratings of math as "interesting" and "relevant").

Data obtained as a result of the questionnaire survey was regarded as inadequate for several reasons. First, the survey involved the use of measurement criteria which relied heavily on personal perceptions of student performance. Although all parents had been given a clear set of student behaviors to consider, there was no way of determining whether or not their response was based on unsubstantiated personal opinion or on current factual information about student consumer math skills. Second, the survey data did not reveal which students had met/had not met performance standards. The planning group felt that data from the survey should be supplemented by data obtained by means of a more direct and objective measure of student performance.

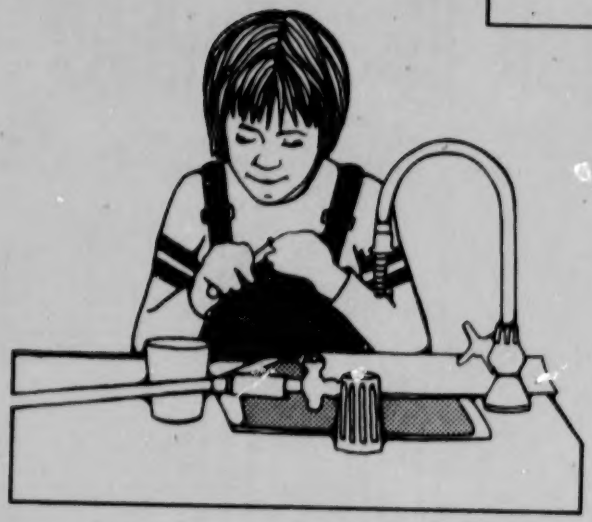
Since samples of student work on practical problems had just been chosen as an appropriate measurement criterion for consumer math skills, the planning group recommended that such work samples be gathered, evaluated, and the findings compared with the results of the questionnaire survey.

DESIRED STUDENT PERFORMANCE

TYPES OF PERFORMANCE	PERFORMANCE STANDARDS			STUDENT POPULATIONS	
	Student Behaviors	Sources of Data	Measurement Criteria	Students Expected to Meet Standards	Characteristics
				Total Population: 750 students, grades 4-6	
☑ BASIC SKILLS Students should: • Be able to perform basic arithmetic operations.	• Add whole numbers, fractions, decimals. • Subtract whole numbers, fractions, decimals. • Multiply whole numbers, fractions, decimals. • Divide whole numbers, fractions, decimals.	Standard Mathematics Achievement Test (Computation Sub-Test).	Student scores at or above the 50th percentile.	At least half (375 students) should achieve scores at or above the 50th percentile. The remaining half (375 students) should achieve scores which fall between the 30th and 50th percentile.	Average range of ability and achievement. One-third of student population are children of seasonal labor force; remaining two-thirds blue collar, middle income.
☑ ATTITUDES Students should: • Have a positive attitude toward the study of mathematics.	• Find the study of math interesting.	Student Attitude Questionnaire.	Student rates math as "interesting" or better on a seven point scale questionnaire item.	At least 60% of the students in grades 4-6 should rate math "interesting" or better.	Many students (above average, average, and below average) seem to have indifferent attitudes toward the study of math.
	• Feel math has practical relevance to their daily activities.		Student rates math as "relevant" or better on a seven point scale questionnaire item.	At least 60% of the students in grades 4-6 should rate math "relevant" or better.	
☑ HIGHER ORDER PROCESSES Students should: • Be able to employ basic arithmetic operations in solving math problems.	• Solve word problems involving addition, subtraction, multiplication, and division of whole numbers, of fractions, and of decimals.	Standard Mathematics Achievement Test (Applications Sub-Test).	Student scores at or above the 50th percentile.	At least half (375 students) should achieve scores at or above the 50th percentile. At least 125 should achieve scores at or above the 40th percentile. At least 200 should achieve scores at or above the 30th percentile, with approximately 50 achieving scores below the 30th percentile.	Approximately one-third of the student population are students with reading problems.
	• Use math to solve practical problems, e.g., figure discounts, sales tax, and comparative price grocery items with accuracy.	Student Work Samples.	Accuracy level of 80% on student work samples consisting of practical problems involving the figuring of discounts, percentages, comparative pricing, etc.	75% of the students completing grade 6 should be able to figure discounts, sales tax, and comparative price grocery items.	There is evidence that a significant number of these students cannot use math to solve practical problems.

CURRENT STUDENT PERFORMANCE

	PERFORMANCE STANDARDS		STUDENT POPULATIONS		
Sources of Data	Student Behaviors	Measurement Criteria	Students Meeting Standards	Students Not Meeting Standards	Characteristics
Standard Mathematics Achievement Test (Computation Sub-Test)			276 students in grades 4-6 achieved scores which fell at or above the 50th percentile.	100 students achieved scores which fell at or above the 40th percentile. 275 students achieved scores which fell at or above the 30th percentile. 100 students achieved scores which fell at or above the 20th percentile.	Average range of ability and achievement. One-third of student population are children of seasonal labor force; remaining two-thirds blue collar, middle income.
Teacher Reports (Informal Poll of a Random Sample of Teachers)	• Students are indifferent toward the study of math.	Number of times students are inattentive in math class.	About half of students are attentive.	About half are inattentive.	Students not meeting standards in this instance represent a cross-section of the total student population, with a full range of ability and interests.
		Frequency of incomplete homework assignments in math.	About half complete homework assigned on time.	About half do not complete homework assigned on time.	
Student Attitude Questionnaire			400 students rated math as "interesting" or better.	350 students did not rate math as "interesting" or better.	More than half of low achieving students indicated that they did not find math "interesting" or "relevant."
			375 students rated math as "relevant" or better.	375 students did not rate math as "relevant" or better.	
Standard Mathematics Achievement Test (Applications Sub-Test)	• Solve word problems involving addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals.	Mean score (50th percentile).	250 students achieved scores which fell at or above the 50th percentile.	125 students achieved scores which fell at or above the 40th percentile. 250 students achieved scores which fell at or above the 30th percentile. 125 students achieved scores which fell at or below the 20th percentile.	The majority of students with scores at or below the 30th percentile are students with reading problems. Most are experiencing academic problems in other subject areas.
Questionnaire Survey of Parents	• Figure discounts. • Compute sales tax. • Comparative price grocery items.	Perceptions of parents regarding current student capabilities.	100 out of 200 parents surveyed indicated that the majority of students completing grade 6 can figure discounts, compute sales taxes, comparative price grocery items.	100 out of 200 parents surveyed indicated that the majority of students completing grade 6 cannot figure discounts, compute sales taxes, comparative price grocery items.	Parents were selected at random. It was not possible to ascertain the characteristics of the students referred to by individual respondents to the survey.
Student Work Samples			Of 200 students completing grade 6, 75 displayed 80% accuracy in solving practical math problems.	Of 200 students completing grade 6, 125 displayed less than 80% accuracy in solving practical math problems.	The students who displayed less than 80% accuracy included both average and below average achievers.



The remainder of Unit 1 consists of step-by-step guidelines for developing a refined need definition. As you make decisions at each step in the process, record those decisions on the Information Sheets provided. You may want to refer back to this case study as you begin each new step.

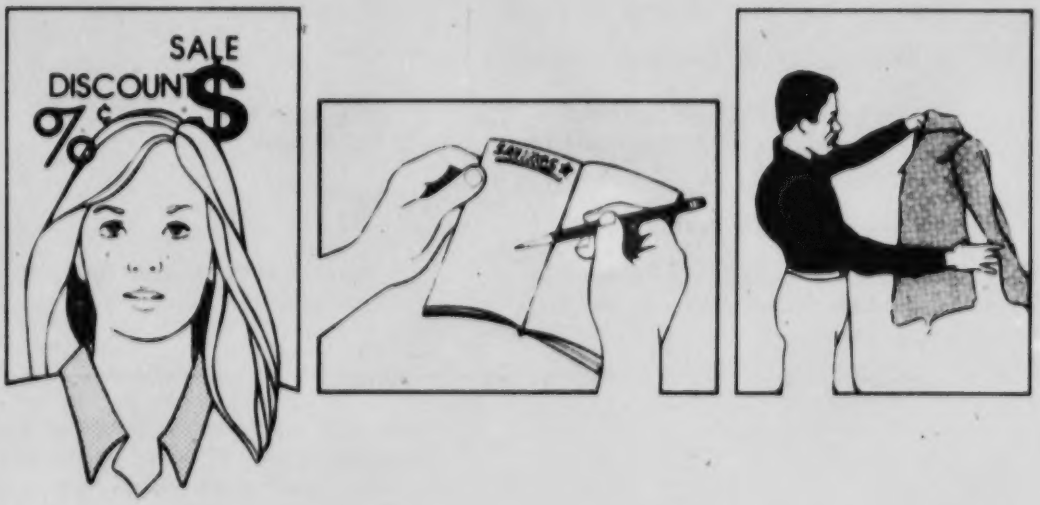
GUIDELINES FOR DEVELOPING THE NEED DEFINITION

GUIDELINES FOR DEVELOPING THE NEED DEFINITION

STEP 1: CLARIFYING DESIRED STUDENT PERFORMANCE

Your purpose at this step is to clarify the goals of your school system's improvement effort. Because the goals describe the types of performance the school system wants its students to achieve as a result of their learning experiences, they are called **desired student performance.** Desired student performance is the key to defining student needs. Desired student performance will be your reference point for assessing the adequacy of current student performance and for planning for its improvement.

Many school systems experience only limited success in improving student performance because they plan too narrowly. Plans for the improvement of reading comprehension, for example, often give only minimal attention to student attitudes while heavily emphasizing basic skills. An approach emphasizing both basic skills and attitudes might well be more effective. It is also important to remember that some types of performance are essential pre-requisites to student success with other types of performance. Higher order reasoning processes such as critical thinking and problem solving, for example, depend upon information and basic skills. With these points in mind, consider the types of student performance outlined in the chart on the next page. Identify the types of student performance mentioned in the preliminary need definition prepared by your planning coordinator. Are there other types of student performance which may be relevant and which should be considered in your planning? If there are, they should also be identified at this time.



TYPES OF STUDENT PERFORMANCE	EXAMPLES
1. *INFORMATION RECALL* Ability to remember terms, facts, concepts, generalizations.	*STUDENTS SHOULD:* *Know historical events.*
2. *BASIC SKILLS* Mastery of principles and procedures for analyzing, organizing, and applying new knowledge.	*Use standard mathematics algorithms to compute.*
3. *HIGHER ORDER PROCESSES* Reasoning skills which can be applied in a wide variety of knowledge and experience situations.	*Formulate hypotheses to explain observed relationships among scientific phenomena.*
4. *SUPPORT SKILLS* Management skills which foster increased student responsibility, initiative, and self-direction.	*Select learning materials.*
5. *ATTITUDES* Emotional disposition toward learning.	*Display interest in reading.*
6. *VALUES* Internal commitment to what is learned.	*Accept democratic ideals.*
7. *PERSONAL DEVELOPMENT* Self-awareness and self-determination, characterized by balanced and mature personal action.	*Develop a sense of self-worth or self-esteem.*
8. *SOCIAL DEVELOPMENT* Awareness and control of relationships with others, characterized by socially responsible action.	*Use interpersonal skills in social relationships.*

Stop now and select the type(s) of student performance relevant to your school system's student needs. Use Information Sheet #1, page 1-33 to document your decisions and then turn to page 1-35.

Types of Student Performance: The performance goals the school system wants its students to achieve.

EXAMPLE

DESIRED STUDENT PERFORMANCE

TYPES OF PERFORMANCE	PERFORMANCE STANDARDS			STUDENT POPULATIONS	
	Student Behaviors	Sources of Data	Measurement Criteria	Students Expected to Meet Standards	Characteristics
☑ BASIC SKILLS Students should: • Be able to perform basic arithmetic operations.					
☑ ATTITUDES Students should: • Have a positive attitude toward the study of mathematics.					
☑ HIGHER ORDER PROCESSES Students should: • Be able to employ basic arithmetic operations in solving math problems.					

INFORMATION SHEET #1

TYPES OF STUDENT PERFORMANCE

Directions: Check the type(s) of desired student performance which appear to be relevant to your school system's student needs. For each type of performance checked, describe the performance goal(s) your school system wants its students to achieve.

☐ *INFORMATION RECALL*	*Students should:*
☐ *BASIC SKILLS*	*Students should:*
☐ *HIGHER ORDER PROCESSES*	*Students should:*
☐ *SUPPORT SKILLS*	*Students should:*
☐ *ATTITUDES*	*Students should:*
☐ *VALUES*	*Students should:*
☐ *PERSONAL DEVELOPMENT*	*Students should:*
☐ *SOCIAL DEVELOPMENT*	*Students should:*

STEP 2: ESTABLISHING PERFORMANCE STANDARDS

Your purpose at this step is to establish performance standards for each type of desired student performance. Performance standards help clarify student performance and can be used to determine whether or not students have achieved desired student performance.

Each of your performance standards should specify:

1. a set of observable student behaviors which are considered representative of desired student performance,
2. sources of data which are appropriate for assessing student achievement of desired student performance,
3. measurement criteria associated with each source of data.

The example below illustrates how performance standards might be specified for a particular type of desired student performance.

TYPE OF PERFORMANCE	PERFORMANCE STANDARDS		
	Student Behaviors	Sources of Data	Measurement Criteria
☑ BASIC SKILLS Students should: • Be able to read with comprehension.	• Develop a good working vocabulary. • Glean important facts from written materials. • Identify main ideas and their organization. • Interpret the underlying meaning of reading materials.	McIntyre Test of Reading Comprehension	70% of the students should score at or above the mean score of a comparable norm group.
		Teacher-Developed Criterion-Referenced Test	Students master at least 8 out of 10 items related to each skill objective.
		Teacher Judgment Based on Classroom Observation	Teachers judge, on the basis of class discussion, that students adequately comprehend the factual content of assigned reading selections.
		Library Book Reports	Students check out at least one library book per week which is appropriate to their reading level and submit a report which clearly outlines the book's content and its major theme.
		Referrals to District Reading Consultant	Less than 10% of the overall student population are referred for remedial assistance in reading comprehension.

Student Behaviors

The identification of representative student behaviors is a critical part of need definition. Plans for the improvement of a certain type of student performance can be complete only if the set of student behaviors chosen to represent that type of performance are:

1. relevant to the type of performance,
2. conducive to the improvement of student performance,
3. specific enough to be useful for planning modifications in curriculum and/or instruction,
4. consistent (no internal conflicts or contradictions among behaviors chosen),
5. comprehensive in terms of coverage of the full range of relevant behaviors,
6. comprehensive in terms of the content focus of the behaviors, if there is a specific content focus.

There are no "hard and fast" rules for establishing representative student behaviors. As you attempt to specify behaviors for each type of performance, the six criteria above can be used to screen out behaviors which are not appropriate.

Try to avoid compiling extensive lists of student behaviors and concentrate instead on developing a selective list of the most important behaviors. Remember that your purpose is to clarify desired student performance in terms of behaviors which are specific enough to guide further planning activities. "Behavioral objectives" are too specific for your purposes in this package. You want to aim for behaviors which are intermediate between general types of student performance on the one hand and very specific student behaviors known as behavioral objectives on the other.

The example immediately below illustrates the level at which your representative student behaviors should be specified:

TYPE OF PERFORMANCE	PERFORMANCE STANDARDS
	Student Behaviors
☑ HIGHER ORDER PROCESSES Students should: • Use the processes of scientific inquiry to carry out simple investigations.	• Conduct systematic observations of scientific phenomena. • Classify data drawn from their observations. • Develop a summary interpretation of the data. • Make predictions on the basis of data gathered through observation.
☑ SUPPORT SKILLS Students should: • Become self-directed learners.	• Set their own learning pace. • Choose their own learning materials, media, and settings. • Evaluate their own learning progress. • Participate in selecting their own learning goals.
☑ VALUES Students should: • Be motivated to use processes of scientific inquiry when attempting to solve contemporary social problems.	• Be aware of the contributions science has made to social progress. • Understand how the processes of scientific inquiry have been used in developing solutions for social problems. • Employ the processes of scientific inquiry in developing solutions for contemporary problems. • Recognize the utility of scientific inquiry in developing solutions for social problems.

You may find that sets of student behaviors related to a particular type of desired student performance already exist. Curriculum guides, banks of objectives, and textbooks, for example, are sources worth consulting. Your task in such cases will be to carefully screen those sets of behaviors, using the six criteria discussed on page 1-36. Recognizing that there is no "standard" set of behaviors for any given type of performance and that each set reflects certain assumptions and biases, you should seek supplementary information and advice as you work through the screening process. Curriculum consultants, learning psychologists, and program developers can be extremely helpful to the planning group, particularly if they are involved from the outset.

Where sets of student behaviors related to a particular type of performance do not already exist, the planning group will have to generate its own. It is strongly recommended that you structure your discussion so that all group members have a common reference point. A number of organized classifications of student behavior can be used as a framework for discussion. Benjamin Bloom's **Taxonomy of Educational Objectives** is perhaps the most well known.

Depending upon the type of performance you are working with, a variety of other helpful materials may be available. If the type of performance is **information mastery**, for example, what students should know will be of primary concern. Student knowledge of traditional content, or content which is valued because it is current, related or prerequisite to other content, philosophically acceptable, interesting, etc., becomes central. Course syllabi, articles by content specialists, surveys of student interests and many other sources can help you identify appropriate content. If the type of performance is **basic skills**, student mastery of a sequenced set of increasingly complex and interrelated skills is usually important. In a number of curriculum areas (e.g., mathematics), learning continuums or "hierarchies" of such student behaviors have been prepared and should be consulted. If the type of performance is **higher order processes**, you are dealing with behaviors which are essentially thinking strategies. Related student behaviors will include the application of rules, methods, principles, etc., and the use of various types of analytical and synthetic reasoning skills. **Support skills** cover a wide range of student behaviors, from simple management of materials to self-initiation and self-evaluation of learning. In the case of **attitudes** and of **values**, taxonomies of affective behaviors which progress from student awareness to appreciative response, to active preference and commitment, to consistent action can provide a useful structure for identifying representative behaviors. Behaviors related to **personal and social development** can be derived from a number of sources, sources which are often applicable to attitudes and values as well. Among the most common are research findings on human behavior and human development, theories in the fields of psychology, sociology, anthropology, and the like.

Stop now and define representative student behaviors for each type of performance you have described on Information Sheet #1, page 1-33. Use Information Sheet #2, page 1-45, to document your decisions and then turn to page 1-39.

Sources of Data

Your purpose is to choose sources of data which are appropriate for assessing student achievement of desired student performance. Begin by reviewing the student behaviors which you have chosen to represent desired student performance. Then discuss which sources of data can provide valid and reliable information about some or all of those student behaviors. Your discussion does not have to be restricted to sources of data which are currently available to your school system. At the same time, when the use of additional sources of data is recommended, the sources should be realistic choices from a practical point of view.

Try to combine data from two or more sources for each type of student performance. Test results, for example, can be combined with expert judgments, perceptions based upon careful observations of students, and/or student self-reports. Opinionnaire findings can be combined with work samples, criterion-referenced test performance, and/or teacher comments.

Carefully consider which individuals and groups from your school system ought to be consulted:

- Teachers
- Community Members
- Students
- School System Administrators
- School Board Members
- Parents
- Professional Organizations
- Consultants

Then review the sources of data most commonly employed by school systems:

SOURCES OF DATA	EXAMPLES
Documents	School Board Policy Statement
Follow-Up Studies	Poll of Recent Graduates
Group Meetings	Teacher Planning Session
Inconspicuous Measures	Student Dropout Statistics
Interviews	Consultation with Reading Specialist
Media	Newspaper Articles
Observation	Formal Observation of Teacher-Pupil Interactions in the Classroom
Personal Contacts	Informal Discussions with Students
Professional Publications	Research Reports
Questionnaires	Community Survey
Records	Student Files (Achievement and Aptitude Test Scores, Teacher Comments and Ratings, Family Background, etc.)
Reports of Test Results	Standardized Test Scores Item Profiles for Criterion-Referenced Tests
Expert Reviews	Recommendation of University Consultant
Telephone Polls	Random Poll of Business and Civic Leaders
Work Samples	Samples of Student Writing

Stop now and choose sources of data which are appropriate for assessing student achievement of desired student performance. Use Information Sheet #2, page 1-45, to document your decisions and then turn to page 1-41.

Measurement Criteria

You have chosen a number of sources of data for assessing student achievement of desired student performance. The next step is to specify measurement criteria for each of those sources. Measurement criteria enable you to assess the extent to which students are achieving desired student performance. They describe acceptable levels of student performance in quantitative and/or qualitative terms. Immediately below is a chart illustrating measurement criteria for some of the sources of data commonly employed by school systems:

SOURCES OF DATA	MEASUREMENT CRITERIA	EXAMPLE
STANDARDIZED ACHIEVEMENT TEST	Norms which have been established by determining how a representative sample of students scores on the test. The norms may be expressed in terms of the central tendency of student performance (the mean, the mode, the median) and in terms of the variability of student performance (the range, standard deviations including standard scores, stanines, percentiles, etc.).	Students achieve a mean score of 35 or better on the Applications Sub-Test of the Comprehensive Test of Science Skills. 16% of the students achieve scores which fall between +1 and +3 standard deviations from the mean; 34% achieve scores which fall between the mean and +1 standard deviation from the mean; 34% achieve scores which fall between the mean and -1 standard deviation from the mean; and 16% achieve scores which fall between -1 and -3 standard deviations from the mean.
CRITERION-REFERENCED TEST	Specific test items related to an objective which would represent mastery of the objective. Acceptable level of mastery may be expressed in terms of number of correct items per objective or a minimum percentage based on the number of correct items.	8 out of 10 items correct for each skill objective. 80% mastery level for each skill objective.
WORK SAMPLE	Criteria derived from the basic concepts and principles of a particular field of knowledge, application, or production.	Teacher-developed criteria for (1) grammatical accuracy, (2) organizational development, and (3) stylistic expression.
INTERVIEWS/ GROUP MEETINGS/ QUESTIONNAIRES/ EXPERT REVIEWS/ TELEPHONE POLLS	Depending upon the source, the criteria can range from opinion or subjective preference to perceptions based upon limited knowledge/ experience, to expert value judgments based upon extensive knowledge/experience.	Importance ratings based upon opinions, preferences, perceptions, expert knowledge or experience.
FORMAL OBSERVATION	Objective, descriptive behavioral criteria established in advance of observation.	Description of pre-specified categories of verbal interactions between teachers and students.
INCONSPICUOUS MEASURE	Events, incidents, actions, transactions, etc., which serve as objective, unobtrusive indices for assessing student behavior.	Number of incidents of school violence.

You will ordinarily find measurement criteria directly associated with or at least implied by your source of data. Standardized achievement tests, for example, are accompanied by a set of norms. Community survey questionnaires are designed to elicit the opinions, preferences, or perceptions of community members regarding student performance. In a few instances, measurement criteria may not be directly associated with or implied by the source of data and will have to be derived from some other related source. Measurement criteria for assessing samples of student writing, for example, might be derived from the basic principles of grammar, logic (organization of ideas), and stylistic expression. Finally, there will be some instances where your measurement criteria may be the simple presence or absence of the student behaviors considered representative of desired student performance.

Your measurement criteria will usually include both objective and subjective criteria. Whenever you are dealing with measurement criteria which are primarily subjective (e.g., personal opinion of community members based upon limited interaction with students), you should try to combine them with measurement criteria which are less subjective (e.g., student scores on standardized math achievement test, frequency and pattern of student errors evident from work samples, etc.). This may demand that you consult additional sources of data.

It is important that your measurement criteria specify levels of acceptable performance which are achievable by your student population. Consider, for example, measurement criteria which involve comparisons with the performance of other students. The reference group of other students might be other students in the same class, school, district, or a representative sample of students drawn on a regional or national basis. Unless there is a close similarity between your students and the students in the reference group, such measurement criteria are inappropriate. Even when your measurement criteria do not involve any comparison with the performance of other students, care should be taken that they reflect reasonable performance expectations in terms of the characteristics of your student population.

Stop now and specify measurement criteria for each of the sources of data listed on Information Sheet #2, page 1-45, and then turn to page 1-47.

Performance Standards: Standards for assessing student achievement of performance goals, including representative student behaviors, sources of data, and measurement criteria.

EXAMPLE

DESIRED STUDENT PERFORMANCE

TYPES OF PERFORMANCE	PERFORMANCE STANDARDS			STUDENT POPULATIONS	
	Student Behaviors	Sources of Data	Measurement Criteria	Students Expected to Meet Standards	Characteristics
☑ BASIC SKILLS Students should: • Be able to perform basic arithmetic operations.	• Add whole numbers, fractions, decimals. • Subtract whole numbers, fractions, decimals. • Multiply whole numbers, fractions, decimals. • Divide whole numbers, fractions, decimals.	Standard Mathematics Achievement Test (Computation Sub-Test).	Student scores at or above the 50th percentile.		
☑ ATTITUDES Students should: • Have a positive attitude toward the study of mathematics.	• Find the study of math interesting.	Student Attitude Questionnaire.	Student rates math as "interesting" or better on a seven point scale questionnaire item.		
	• Feel math has practical relevance to their daily activities.		Student rates math as "relevant" or better on a seven point scale questionnaire item.		
☑ HIGHER ORDER PROCESSES Students should: • Be able to employ basic arithmetic operations in solving math problems.	• Solve word problems involving addition, subtraction, multiplication, and division of whole numbers, of fractions, and of decimals.	Standard Mathematics Achievement Test (Applications Sub-Test).	Student scores at or above the 50th percentile.		
	• Use math to solve practical problems, e.g., figure discounts, sales tax, and comparative price grocery items with accuracy.	Student Work Samples.	Accuracy level of 80% on student work samples consisting of practical problems involving the figuring of discounts, percentages, comparative pricing, etc.		

INFORMATION SHEET #2

PERFORMANCE STANDARDS

Directions: First, define a set of representative student behaviors for each type of performance identified on Information Sheet #1, page 1-33. Then return to page 1-39. Second, list sources of data which are appropriate for assessing student achievement of those behaviors. Then return to page 1-41. Third, specify measurement criteria for each of the sources of data listed.

Student Behaviors	Sources of Data	Measurement Criteria

STEP 3: SPECIFYING STUDENT POPULATIONS EXPECTED TO MEET PERFORMANCE STANDARDS

You are asked at this step to specify the students from your school system who are expected to achieve desired student performance. Which of the students in the overall student population should meet the performance standards you have just identified?

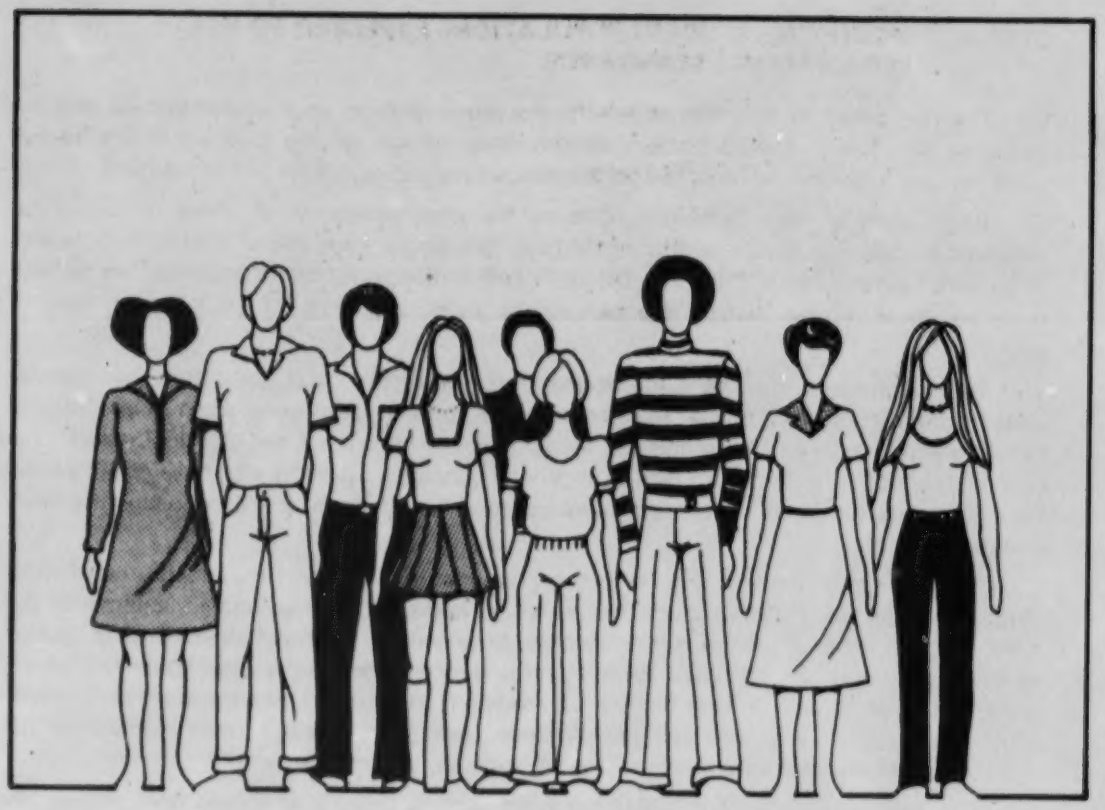
Begin with student behaviors. Discuss the appropriateness of those behaviors for different groups, sub-groups, and/or individuals included in your overall student population. Then turn to measurement criteria. Discuss whether the performance expectations defined by your measurement criteria are reasonable for all segments of your overall student population.

Some behaviors may be quite appropriate for certain students within your overall student population and highly inappropriate for others, depending upon their level of development, mastery of prerequisites, etc. Students who are not yet able to abstract from specifics cannot be expected to deal with general concepts. Students who have not mastered basic computation skills cannot be expected to solve advanced word problems involving computation, etc.

Particular measurement criteria may be reasonable in terms of the capabilities of some students within your overall student population, and clearly unreasonable in terms of the capabilities of other students. Is it reasonable, for example, to expect all students to display significantly improved attitudes toward learning when the overall population includes a group of students with a long history of academic frustration? Are measurement criteria which emphasize mean (average) performance reasonable, when a large segment of the overall student population is above average in aptitude and achievement?

The following student characteristics are among those you should consider as you discuss (1) appropriate behaviors and (2) reasonable measurement criteria for each segment of your overall student population:

- Learning Strengths
- Learning Difficulties
- Aptitude for Learning
- Stage of Intellectual Development
- Emotional Maturity (Personal and Social)
- Primary Motivation for Learning
- Personal Goals and Interests
- Current Knowledge, Skills, Attitudes, Capabilities
- Family, Peer, and Community Influences on Student
- Learning Styles (Sensory, Degree of Direction Required, etc.)



Try to specify each student population expected to meet your performance standards in exact terms. Avoid statements like "the majority," "most," etc. Indicate wherever possible the number, age, grade or general level of educational progress, and respective school(s) of the students involved. Document the characteristics of each student population. The information will be extremely useful for planning how to improve curriculum and/or instruction. It also serves as an immediate check on the **appropriateness** and the **reasonableness** of each performance standard associated with that particular student population. Following is an example which illustrates how each student population should be specified:

STUDENT POPULATIONS	
Students Expected to Meet Standards	**Characteristics**
All students in grades X and Y should be able to conduct systematic observations, classify and quantify data. At least 75% of the students in grade Z should also be able to develop summary interpretations and make predictions on the basis of data gathered.	These students are generally above average in ability and achievement. Since students mature at different rates, some students in grade Z may not have yet developed the intellectual ability to summarize specific data or to draw generalized conclusions from specific data.
Of the 400 students who achieved scores which fell at or above the group mean on the Applications Sub-Test of the Comprehensive Test of Science Skills, all should maintain or improve their performance. Of the 200 students who achieved scores which fell below the group mean, 100 should improve their scores by eight raw score points (one half of one standard deviation).	Of a total population of 600 students, 50 scored at the 80th percentile, 100 scored at the 70th percentile, and 200 scored at the 65th percentile, 50 at the 60th percentile, 150 scored at the 50th percentile and 50 at the 40th percentile on the Applications Sub-Test of the Comprehensive Test of Science Skills.
All students with grades of C or above should rate science class as "very interesting" or better on a self-report questionnaire. At least one-fourth of students with grades of C- or below should rate science class as "interesting" or better on a self-report questionnaire.	Teachers report that students who are experiencing average success in class are usually fairly attentive, and that students who are experiencing better than average success are usually even more attentive. Only about 20% of the students experiencing learning difficulties appear attentive.

Stop now and specify the student populations expected to meet each of the performance standards described on Information Sheet #2, page 1-45. Use Information Sheet #3, page 1-53 to document your decisions.

Student Populations: *The various groups and sub-groups of students involved and their characteristics.*

EXAMPLE

DESIRED STUDENT PERFORMANCE

TYPES OF PERFORMANCE	PERFORMANCE STANDARDS			STUDENT POPULATIONS	
	Student Behaviors	Sources of Data	Measurement Criteria	Students Expected to Meet Standards	Characteristics
☑ BASIC SKILLS Students should: • Be able to perform basic arithmetic operations.				Total Population: 750 students, grades 4-8.	
	• Add whole numbers, fractions, decimals. • Subtract whole numbers, fractions, decimals. • Multiply whole numbers, fractions, decimals. • Divide whole numbers, fractions, decimals.	Standard Mathematics Achievement Test (Computation Sub-Test).	Student scores at or above the 90th percentile.	At least half (375 students) should achieve scores at or above the 60th percentile. The remaining half (375 students) should achieve scores which fall between the 30th and 60th percentile.	Average range of ability and achievement. One-third of student population are children of seasonal labor force; remaining two-thirds blue collar, middle income.
☑ ATTITUDES Students should: • Have a positive attitude toward the study of mathematics.	• Find the study of math interesting.	Student Attitude Questionnaire.	Student rates math as "interesting" or better on a seven point scale questionnaire item.	At least 90% of the students in grades 4-6 should rate math "interesting" or better.	Many students (above average, average, and below average) seem to have indifferent attitudes toward the study of math.
	• Feel math has practical relevance to their daily activities.		Student rates math as "relevant" or better on a seven point scale questionnaire item.	At least 90% of the students in grades 4-6 should rate math "relevant" or better.	
☑ HIGHER ORDER PROCESSES Students should: • Be able to employ basic arithmetic operations in solving math problems.	• Solve word problems involving addition, subtraction, multiplication, and division of whole numbers, of fractions, and of decimals.	Standard Mathematics Achievement Test (Applications Sub-Test).	Student scores at or above the 50th percentile.	At least half (375 students) should achieve scores at or above the 50th percentile. At least 125 should achieve scores at or above the 40th percentile. At least 200 should achieve scores at or above the 30th percentile, with approximately 50 achieving scores below the 30th percentile.	Approximately one-third of the student population are students with reading problems.
	• Use math to solve practical problems, e.g., figure discounts, sales tax, and comparative price grocery items with accuracy.	Student Work Samples.	Accuracy level of 90% on student work samples consisting of practical problems involving the figuring of discounts, percentages, comparative pricing, etc.	75% of the students completing grade 8 should be able to figure discounts, sales tax, and comparative price grocery items.	There is evidence that a significant number of these students cannot use math to solve practical problems.

INFORMATION SHEET #3

STUDENT POPULATIONS

Directions: Review the performance standards described on Information Sheet #2, page 1-45, and discuss the characteristics of various segments of your overall student population. Then decide which of your performance standards are appropriate and reasonable for the different groups, subgroups, and/or individuals within your overall student population. Use the space provided below to define the student populations expected to meet different performance standards.

Students Expected to Meet Standards (Number, Age/Grade/Educational Level)	Characteristics

STEP 4: DOCUMENTING CURRENT STUDENT PERFORMANCE

Your purpose at this step is to synthesize available data on current student performance. In order to define your school system's student needs, you must establish the extent to which the student behaviors the school system wants each student population to achieve (desired student performance) are currently being achieved or not being achieved by that student population. Data drawn from all of the sources known to the planning group as well as the sources cited in the coordinator's preliminary need definition should be considered.

Your sources of data for current student performance may not always be the same as those you have chosen for desired student performance. They should, however, at least deal with the same student behaviors as those chosen to represent desired student performance. Similarly, the measurement criteria used to assess current student performance may not always be the same as those established for desired student performance. They should at least be comparable. Finally, you may find that the student population assessed is not always the same as the student population for which performance expectations were established under desired student performance. Where it is narrower, the population should at least be a representative sample. Where it is broader, it should be restricted to the student population of concern or to a representative sample of that population.

There are two ways to proceed in documenting current student performance. When the performance standards used to assess current student performance are the same as those chosen for desired student performance:

1. List each source of data used to assess current student performance.
2. Describe the current performance of each student population, indicating which students have met performance standards and which have not.

When the performance standards used to assess current student performance are not the same as those chosen for desired student performance:

1. List each source of data used to assess current student performance.
2. Record those student behaviors and measurement criteria used to assess current student performance which differ from those specified for desired student performance.
3. Describe the current performance of each student population, indicating which students have met performance standards and which have not.

Your description of the current performance of each student population should in both cases cite relevant student behaviors and measurement criteria. Sometimes you will find that only student behaviors can be mentioned; sometimes measurement criteria alone may be mentioned. Attempt to include detailed information about the characteristics of those students whose current performance does not meet the school system's performance standards. You will find it very helpful for planning improvements in curriculum and/or instruction.

Stop now and document current student performance, using Information Sheet #4, page 1-59. When you have completed the Information Sheet, turn to page 1-61.

EXAMPLE

CURRENT STUDENT PERFORMANCE

	PERFORMANCE STANDARDS		STUDENT POPULATIONS		
Sources of Data	Student Behaviors	Measurement Criteria	Students Meeting Standards	Students Not Meeting Standards	Characteristics
Standard Mathematics Achievement Test (Computation Sub-Test)			275 students in grades 4-6 achieved scores which fell at or above the 50th percentile.	100 students achieved scores which fell at or above the 40th percentile. 275 students achieved scores which fell at or above the 30 percentile. 100 student achieved scores which fell at or above the 20th percentile.	Average range of ability and achievement. One-third of student population are children of seasonal labor force, remaining two-thirds blue collar, middle income.
Teacher Reports (Informal Poll of a Random Sample of Teachers)	• Students are indifferent toward the study of math.	Number of times students are inattentive in math class.	About half of students are attentive.	About half are inattentive.	Students not meeting standards in this instance represent a cross-section of the total student population, with a full range of ability and interests.
		Frequency of incomplete homework assignments in math.	About half complete homework assigned on time.	About half do not complete homework assigned on time.	
Student Attitude Questionnaire			400 students rated math as "interesting" or better.	350 students did not rate math as "interesting" or better.	More than half of low achieving students indicated that they did not find math "interesting" or "relevant."
			375 students rated math as "relevant" or better.	376 students did not rate math as "relevant" or better.	
Standard Mathematics Achievement Test (Applications Sub-Test)	• Solve word problems involving addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals.	Mean score (50th percentile).	250 students achieved scores which fell at or above the 50th percentile.	125 students achieved scores which fell at or above the 40th percentile. 250 students achieved scores which fell at or above 30th percentile. 125 students achieved scores which fell at or below the 20th percentile.	The majority of students with scores at or below the 30th percentile are students with reading problems. Most are experiencing academic problems in other subject areas.
Questionnaire Survey of Parents	• Figure discounts. • Compute sales tax. • Comparative price grocery items.	Perceptions of parents regarding current student capabilities.	100 out of 200 parents surveyed indicated that the majority of students completing grade 6 can figure discounts, compute sales taxes, comparative price grocery items.	100 out of 200 parents surveyed indicated that the majority of students completing grade 6 cannot figure discounts, compute sales taxes, comparative price grocery items.	Parents were selected at random. It was not possible to ascertain the characteristics of the students referred to by individual respondents to the survey.
Student Work Samples			Of 200 students completing grade 6, 75 displayed 80% accuracy in solving practical math problems.	Of 200 students completing grade 6, 125 displayed less than 80% accuracy in solving practical math problems.	The students who displayed less than 80% accuracy included both average and below average achievers.

INFORMATION SHEET #4

CURRENT STUDENT PERFORMANCE

Directions: Synthesize available data on current student performance in the space provided below. First, cite all sources of data consulted. Second, define the current student behaviors sampled by each source of data and the measurement criteria used to assess current levels of student performance where the behaviors and criteria differ from those selected for desired student performance on Information Sheet #2, page 1-45. Third, describe the current performance of each student population in terms of those behaviors and criteria.

PERFORMANCE STANDARDS			STUDENT POPULATIONS		
Sources of Data	Student Behaviors	Measurement Criteria	Students Meeting Standards	Students Not Meeting Standards	Characteristics

STEP 5: REVIEWING THE NEED DEFINITION

Your purpose at this step is to review the adequacy of the need definition you have developed and to further refine the need definition so that it is helpful in future planning. The data presented in the need definition ought to be clear, comprehensive, and as consistent as practically possible. Use the following questions to guide your review:

- **CLEAR**

  1. Is any of the data too general or too vague to be useful in planning?
  2. Is any of the data ambiguous?
  3. Is any of the data contradictory?

- **COMPREHENSIVE**

  1. Have all important types of student performance been considered?
  2. Are the student behaviors related to each type of performance sufficiently representative?
  3. Do the sources of data provide balanced, in-depth information about the student behaviors related to each type of performance?
  4. Do the measurement criteria permit thorough documentation of the extent to which various student populations are or are not achieving desired student performance?
  5. Is there complete performance data for each student population expected to meet the school system's different performance standards, or at least for a representative sample of each population?

- **CONSISTENT**

  1. Is there a correspondence between the student behaviors associated with desired student performance and the student behaviors for which current performance data is available?
  2. Is there a correspondence between the sources of data recommended as appropriate for assessing desired student performance and those actually used in assessing current student performance?
  3. Is there a correspondence between the measurement criteria established for desired student performance and those used to assess current student performance?
  4. Is there a correspondence between the student populations expected to meet standards for desired student performance and the student populations whose current performance is being assessed?

Take time to discuss your need definition in terms of the questions raised above, making refinements and collecting additional data as necessary. When you are satisfied that the need definition is sufficiently clear, comprehensive, and consistent, turn to a discussion of priorities.

Unit 2 is designed to assist you in identifying improvements in curriculum and/or instruction required to address specific student needs. Since you will probably be considering more than one student need, you may find it helpful to determine their relative importance before beginning work in Unit 2.

Consider only those cases in which you have clear, comprehensive, and consistent evidence that there is a gap between desired student performance and current student performance. Decide which of the following factors (or which combination of factors) should influence your decision-making:

1. The size of the student populations whose current performance has not met performance standards.
2. The extent to which their current performance falls below acceptable levels of performance.
3. The anticipated difficulty of their achieving the behaviors which represent desired student performance.
4. The negative consequences which may result if their current performance is not improved.
5. Pressures exerted on the school system to improve their current performance.

Sometimes student needs may be so closely related that it is very difficult to determine their relative priority. In such instances, you may want to group your student needs according to those of greater and lesser priority.

Stop now and use the questions on pages 1-61 and 1-62 to refine the need definition you have developed. Use Information Sheet #5, pages 1-67 to 1-71, to draft the refined need definition. Space has been provided on the Information Sheet for comments on the priority of student needs.

EXAMPLE

DESIRED STUDENT PERFORMANCE

TYPES OF PERFORMANCE	PERFORMANCE STANDARDS			STUDENT POPULATIONS	
	Student Behaviors	Sources of Data	Measurement Criteria	Students Expected to Meet Standards	Characteristics
				Total Population: 750 students, grades 4-6.	
☑ **BASIC SKILLS**					
Students should:					
• Be able to perform basic arithmetic operations.	• Add whole numbers, fractions, decimals. • Subtract whole numbers, fractions, decimals. • Multiply whole numbers, fractions, decimals. • Divide whole numbers, fractions, decimals.	Standard Mathematics Achievement Test (Computation Sub-Test).	Student scores at or above the 50th percentile.	At least half (375 students) should achieve scores at or above the 50th percentile. The remaining half (375 students) should achieve scores which fall between the 30th and 50th percentile.	Average range of ability and achievement. One-third of student population are children of seasonal labor force; remaining two-thirds blue collar, middle income.
☑ **ATTITUDES**					
Students should:					
• Have a positive attitude toward the study of mathematics.	• Find the study of math interesting.	Student Attitude Questionnaire.	Student rates math as "interesting" or better on a seven point scale questionnaire item.	At least 60% of the students in grades 4-6 should rate math "interesting" or better.	Many students (above average, average, and below average) seem to have indifferent attitudes toward the study of math.
	• Feel math has practical relevance to their daily activities.		Student rates math as "relevant" or better on a seven point scale questionnaire item.	At least 60% of the students in grades 4-6 should rate math "relevant" or better.	
☑ **HIGHER ORDER PROCESSES**					
Students should:					
• Be able to employ basic arithmetic operations in solving math problems.	• Solve word problems involving addition, subtraction, multiplication, and division of whole numbers, of fractions, and of decimals.	Standard Mathematics Achievement Test (Applications Sub-Test).	Student scores at or above the 50th percentile.	At least half (375 students) should achieve scores at or above the 50th percentile. At least 125 should achieve scores at or above the 40th percentile. At least 200 should achieve scores at or above the 30th percentile, with approximately 50 achieving scores below the 30th percentile.	Approximately one-third of the student population are students with reading problems.
	• Use math to solve practical problems, e.g., figure discounts, sales tax, and comparative price grocery items with accuracy.	Student Work Samples.	Accuracy level of 80% on student work samples consisting of practical problems involving the figuring of discounts, percentages, comparative pricing, etc.	75% of the students completing grade 6 should be able to figure discounts, sales tax, and comparative price grocery items.	There is evidence that a significant number of these students cannot use math to solve practical problems.

EXAMPLE

CURRENT STUDENT PERFORMANCE

	PERFORMANCE STANDARDS		STUDENT POPULATIONS		
Sources of Data	Student Behaviors	Measurement Criteria	Students Meeting Standards	Students Not Meeting Standards	Characteristics
Standard Mathematics Achievement Test (Computation Sub-Test)			275 students in grades 4-8 achieved scores which fell at or above the 50th percentile.	100 students achieved scores which fell at or above the 40th percentile. 275 students achieved scores which fell at or above the 30 percentile. 100 student achieved scores which fell at or above the 20th percentile.	Average range of ability and achievement. One-third of student population are children of seasonal labor force; remaining two-thirds blue collar, middle income.
Teacher Reports (Informal Poll of a Random Sample of Teachers)	• Students are indifferent toward the study of math.	Number of times students are inattentive in math class.	About half of students are attentive.	About half are inattentive.	Students not meeting standards in this instance represent a cross-section of the total student population, with a full range of ability and interests.
		Frequency of incomplete homework assignments in math.	About half completes homework assigned on time.	About half do not complete homework assigned on time.	
Student Attitude Questionnaire			400 students rated math as "interesting" or better.	350 students did not rate math as "interesting" or better.	More than half of low achieving students indicated that they did not find math "interesting" or "relevant."
			375 students rated math as "relevant" or better.	375 students did not rate math as "relevant" or better.	
Standard Mathematics Achievement Test (Applications Sub-Test)	• Solve word problems involving addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals.	Mean score (50th percentile).	250 students achieved scores which fell at or above the 50th percentile.	125 students achieved scores which fell at or above the 40th percentile. 250 students achieved scores which fell at or above 30th percentile. 125 students achieved scores which fell at or below the 20th percentile.	The majority of students with scores at or below the 30th percentile are students with reading problems. Most are experiencing academic problems in other subject areas.
Questionnaire Survey of Parents	• Figure discounts. • Compute sales tax. • Comparative price grocery items.	Perceptions of parents regarding current student capabilities.	100 out of 200 parents surveyed indicated that the majority of students completing grade 6 can figure discounts, compute sales taxes, comparative price grocery items.	100 out of 200 parents surveyed indicated that the majority of students completing grade 6 cannot figure discounts, compute sales taxes, comparative price grocery items.	Parents were selected at random. It was not possible to ascertain the characteristics of the students referred to by individual respondents to the survey.
Student Work Samples			Of 200 students completing grade 6, 75 displayed 80% accuracy in solving practical math problems.	Of 200 students completing grade 6, 125 displayed less than 80% accuracy in solving practical math problems.	The students who displayed less than 80% accuracy included both average and below average achievers.

INFORMATION SHEET #5

NEED DEFINITION

DESIRED STUDENT PERFORMANCE

TYPES OF PERFORMANCE	PERFORMANCE STANDARDS			STUDENT POPULATIONS	
	Student Behaviors	Sources of Data	Measurement Criteria	Students Expected to Meet Standards	Characteristics

INFORMATION SHEET #5 (Continued)

NEED DEFINITION

CURRENT STUDENT PERFORMANCE

	PERFORMANCE STANDARDS		STUDENT POPULATIONS		
Sources of Data	Student Behaviors	Measurement Criteria	Students Meeting Standards	Students Not Meeting Standards	Characteristics

INFORMATION SHEET #5 (Continued)

NEED DEFINITION

PRIORITY OF STUDENT NEEDS

Unit 2

Establishing Improvement Requirements

Developed by
Sharon Tumulty

Research for Better Schools, Inc.
Robert G. Scanlon, Executive Director
April, 1978

ACKNOWLEDGEMENTS

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Patricia Hall, Carol Crociante, and Sheila Marshall typed numerous drafts and revisions of the package. Theresa Haskins composer set the package. The layout was done by Judith Barbour. The illustrations were prepared by John Nearing.

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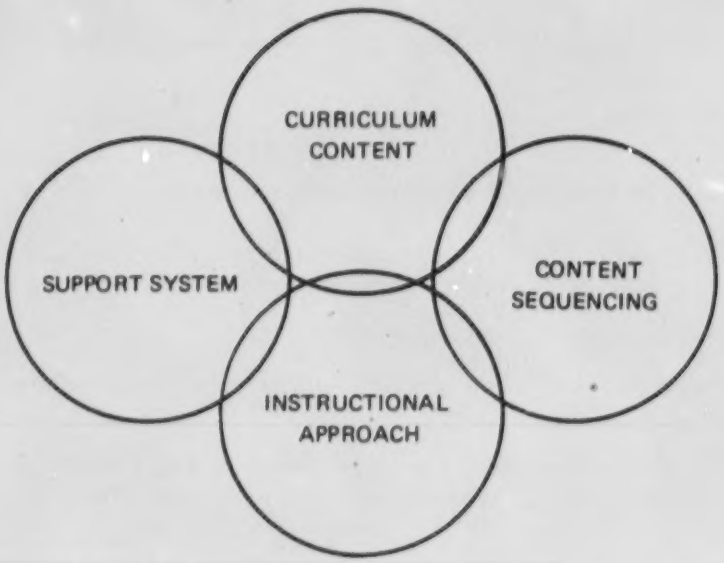
INTRODUCTION

Student needs provide the focus for planning improvement in curriculum and instruction. The need definition you developed in Unit 1 contains key information about desired student performance which should guide your planning throughout this unit. Concentrate particularly on the student behaviors which are to be achieved and the characteristics of the student population(s) expected to achieve those behaviors.

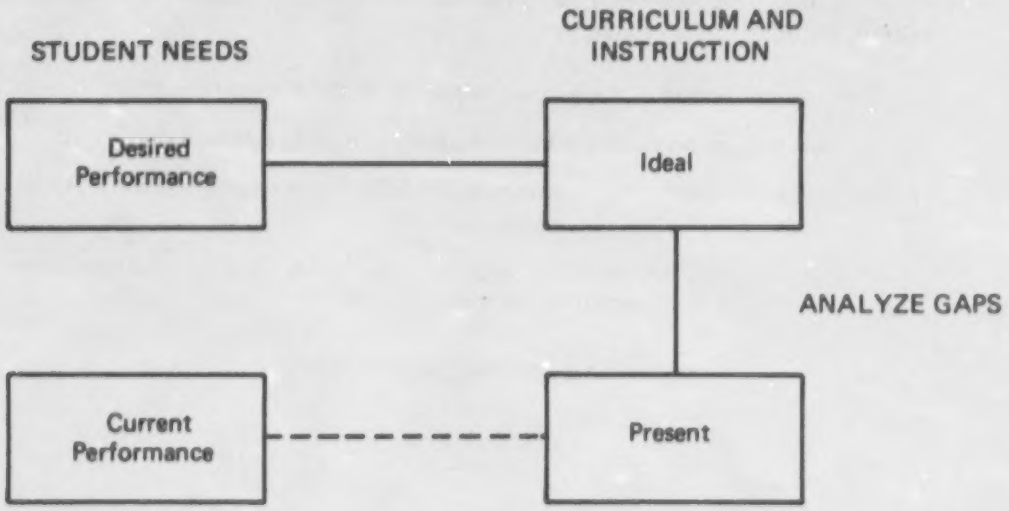
This unit helps you determine the kinds of curriculum and instructional improvement required to promote desired student performance. Four kinds of improvement requirements are discussed, including those related to:

1. **Curriculum Content** – the subject matter(s) of student learning.
2. **Content Sequencing** – the principles used to organize curriculum content.
3. **Instructional Approach** – strategies for actively engaging students in the learning process.
4. **Support System** – strategies for organizing the human and material resources essential to instruction.

CURRICULUM AND INSTRUCTION



The planning method used throughout the unit is a simplified version of the method used in Unit 1. In Unit 1, you identified student needs by analyzing the gaps between desired student performance and current student performance. In Unit 2, you will identify improvement requirements by analyzing gaps between (1) elements of curriculum and instruction considered **ideal** for promoting desired student performance, and (2) the elements of curriculum and instruction which **presently exist** in your school system.



The planning method used in this unit involves four steps:

1. Decide what elements of curriculum and instruction would be **ideal** for helping students achieve desired student performance.
2. State the **reasons** for your decision(s).
3. Describe the elements of curriculum and instruction which **presently exist** in your school system.
4. Analyze gaps between the **ideal** and **what presently exists**, and identify improvement requirements related to curriculum and instruc ion.

You will use this four-step planning method to identify improvement requirements related to:

- Curriculum Content
- Content Sequencing
- Instructional Approach
- Support System

As you work through the unit, you will find that improvement requirements differ in terms of the degree of improvement required. There may be a total gap (an ideal element completely absent from present practice in your school system). In such a case, your improvement requirement will be to change present practice to include the new element. Example: Peer tutoring should be used to reinforce student learning of basic skills. Or there may be only a partial gap (an ideal element is included in present practice, but not to the extent that it could be). In such a case, your improvement requirement will be to modify present practice so that it more closely corresponds to the ideal. Example: Teachers should be provided with additional training in the development of criterion-referenced tests for identifying basic skills needs of students.

To make a good start on your work in this unit, you should carefully review the need definition developed in Unit 1. Concentrate on (1) the key **student behaviors** to be achieved and (2) the specific **characteristics of the student population(s)** expected to achieve those behaviors. The student behaviors and characteristics will provide you with a continuous frame of reference for the planning decisions you will be making throughout the unit. In many cases, they will also furnish you with reasons to justify the planning decisions you are making in terms of their relationship to desired student performance.

On page 2-7 you will find a worksheet for summarizing key information about desired student performance that can serve as a guide as you work through Unit 2. Turn to page 2-5 for an example of how to complete the worksheet before proceeding. **Note:** *The examples throughout this unit are continuous examples based on the sample need definition from Unit 1.*

EXAMPLE

DESIRED STUDENT PERFORMANCE

Student Behaviors	Student Characteristics
☑ BASIC SKILLS Students should be able to perform basic arithmetic operations. • Add whole numbers, fractions, decimals. • Subtract whole numbers, fractions, decimals. • Multiply whole numbers, fractions, decimals. • Divide whole numbers, fractions, decimals.	Average range of ability and achievement. One-third of student population are children of seasonal labor force; remaining two-thirds blue collar, middle income.
☑ ATTITUDES Students should have a positive attitude toward the study of mathematics. • Find the study of math interesting. • Feel math has practical relevance to their daily activities.	Many students seem to have indifferent attitudes toward the study of math. These students represent a cross-section of the total student population, with a full range of ability and interests. More than half of low achieving students indicated that they did not find math "interesting" or "relevant."
☑ HIGHER ORDER PROCESSES Students should be able to employ basic arithmetic operations in solving math problems: • Solve word problems involving addition, subtraction, multiplication, and division of whole numbers, of fractions, and of decimals. • Use math to solve practical problems, e.g., figure discounts, sales tax, and comparative price grocery items with accuracy.	Approximately one-third of the student population are students with reading problems. The majority of students with scores at or below the 30th percentile on the word problems section of the Standard Mathematics Achievement Test are students with reading problems. Most are experiencing academic problems in other subject areas. The students who displayed less than 80% accuracy in solving practical math problems included both average and below average achievers.

WORKSHEET

DESIRED STUDENT PERFORMANCE

Directions: Take time now to review your Unit 1 need definition. Describe the student behaviors and the characteristics of the student population(s) which relate to your priority needs in the space provided below. This worksheet should be immediately available to members of your planning group as they proceed through this unit.

Student Behaviors	Student Characteristics

CURRICULUM CONTENT

In this section, you will be using four planning steps to identify improvement requirements related to curriculum content:

Step 1 – Decide which types of content would be **ideal** for helping students achieve desired student performance.

Step 2 – State the **reasons** for deciding that those types of content would be ideal.

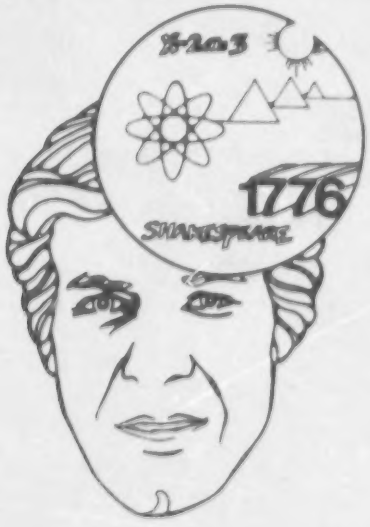
Step 3 – Describe the types of content which are emphasized in the **present** curriculum.

Step 4 – **Analyze gaps** between the types of content which would be ideal and types of content which are emphasized in the present curriculum. **Identify improvement requirements** related to curriculum content.

Explanations of each planning step are provided in the text and should be read before you attempt to work through any of the steps. An example illustrating how to complete the steps follows the explanations. At the end of the section, there is an information sheet to be used in recording your own planning decisions.

STEP 1: SELECTING IDEAL CONTENT

Curriculum content can be selected from a variety of subject matter areas, including: (1) traditional academic disciplines, (2) the personal experiences of students, (3) society as an environment and/or (4) the world of thought. To assist you in selecting ideal content, some of the types of content associated with each area are described on the following page.



TYPES OF CONTENT

☐ **ACADEMIC DISCIPLINES** – Organized bodies of existing knowledge.

_____ Terms
_____ Facts
_____ Key Concepts
_____ Rules and Relationships
_____ Methods and Procedures
_____ Principles and Generalizations
_____ Other (Specify)

☐ **PERSONAL EXPERIENCES** – Experiences which are part of the student's daily life.

_____ Student Interests or Purposes
_____ Student Activities
_____ Student Choices and Actions
_____ Personal Roles and Relationships
_____ Other (Specify)

☐ **SOCIETY** – The broad environment of human relationships, activities, and institutions.

_____ Life Roles in Society
_____ Practical Life Skills
_____ Current Events and Issues
_____ Societal Problems
_____ Societal Values
_____ Societal Functions
_____ Other (Specify)

☐ **WORLD OF THOUGHT** – Thinking strategies used to develop, discover, clarify, test, or apply knowledge.

_____ Inductive Reasoning Processes
_____ Deductive Reasoning Processes
_____ Other (Specify)

STEP 2: REASONS FOR SELECTING IDEAL CONTENT

Your reasons for choosing some type(s) of content will often be clearly related to desired student behavior and/or student characteristics. With other type(s) of content, your reasons may be derived from practical experience, from basic assumptions about student learning, and the like. The important thing is that you have a consistent set of reasons to justify your decisions about ideal content. These are the kinds of questions you should be asking as you attempt to select ideal content:

- **What are the type(s) of content already pre-determined or implied by your student behaviors?**

EXAMPLE

Student Behavior	Type(s) of Content
Students should be able to add whole numbers and fractions.	Key Concepts (e.g., rules and relationships, methods and procedures-addition of whole numbers and fractions).

- **What are the type(s) of content suggested by the characteristics of your student population(s)?**

EXAMPLE

Student Behavior	Student Characteristics	Type(s) of Content
Students should use math to solve practical problems.	More than half of low achieving students indicate that they did not find math "relevant."	Practical Life Skills (Consumer problems dealing with money exchange, measurement and percentages). Personal Roles (Consumer problems which have direct application to students' current social and economic roles).

- **What are the type(s) of content which would provide the best vehicle for promoting desired student behavior (where specific type(s) are not already predetermined, directly implied, or suggested by the characteristics of the student population)?**

EXAMPLE

Student Behavior	Type(s) of Content
Students should find the study of math interesting.	Current events and issues (applications of mathematics in daily news).

STEP 3: DESCRIBING PRESENT CONTENT

At this step, the type(s) of content being emphasized in your present curriculum will be described. The general type(s) of content outlined on page 2-10 can be used as a guide in completing this step.

STEP 4: ANALYZING GAPS AND IDENTIFYING IMPROVEMENT REQUIREMENTS

Once present curriculum content has been described, you should be able to easily analyze gaps between "ideal" and "present" content and identify improvement requirements. Remember that the gaps may be total or only partial. If the gap is total (ideal content completely absent from present curriculum), your improvement requirement will be to change the present curriculum to include that content. If the gap is partial (ideal content is included in present curriculum, but not to the extent that it should be), your improvement requirement will be to modify present curriculum content so that it corresponds with the ideal.

Turn to pages 2-13 and 2-15 and review the example before proceeding.

EXAMPLE

CURRICULUM CONTENT

IDEAL CONTENT	REASONS	PRESENT CONTENT
Key Concepts Rules and Relationships Methods and Procedures	Improvement of basic skills in mathematics is critical. Objectives from the mathematics continuum which are to be achieved include these types of content: concepts, rules and relationships, methods and procedures related to addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals.	Key Concepts Rules and Relationships Methods and Procedures
Student Interests Student Activities	The development of positive student attitudes toward math is very important. Many students appear indifferent towards towards math, and have indicated that they feel it has very little practical relevance to their daily lives. Mathematics content related to student interests and activities should help promote more positive student attitudes toward the study of math.	TOTAL GAP
Life Roles in Society	Assuming that students are able to perform basic arithmetic operations, they must be able to apply those operations in solving math problems. Many of the students currently experiencing difficulty with word problems are poor readers and below average performers in other academic areas. Word problems involving the use of vocabulary with which these students are already familiar and having direct application to their current social and economic roles in the immediate community would be ideal.	
Practical Life Skills	Student work samples indicate that a significant number of students lack consumer skills essential for economic survival in contemporary life. Although the content of the present curriculum does deal with the applications of math to basic economic functions performed in society (e.g., money exchange, measurement, percentages), it does not place sufficient emphasis on practical consumer problems.	PARTIAL GAP

EXAMPLE

CURRICULUM CONTENT (Continued)

IMPROVEMENT REQUIREMENTS	PREFERENCES
1. Traditional math content should be made more relevant to the interests and daily activities of students. 2. Math content should emphasize word problems which use vocabulary familiar to students which directly apply to their current social and economic roles in the community. 3. Math content should place more emphasis on practical problems which will foster the development of consumer skills essential in contemporary life.	

INFORMATION SHEET #1

CURRICULUM CONTENT

Directions: Review your school system's need definition, particularly student behaviors and any information related to student characteristics. Then discuss which type(s) of content would be ideal for promoting desired student performance. Document your decisions in the space provided below and provide reasons for your decisions.

Describe the type(s) of content emphasized in your present curriculum. Then compare the ideal type(s) of content selected with the type(s) of content emphasized in your present curriculum. Where gaps exist, identify the specific kinds of improvement which are required. Note other improvements which represent strong preferences, but are not considered essential.

IDEAL CONTENT	REASONS	PRESENT CONTENT

IMPROVEMENT REQUIREMENTS	PREFERENCES

CONTENT SEQUENCING

In this section, you will be using the same four planning steps you used in the previous section to identify improvement requirements related to content sequencing:

Step 1 – Decide which sequencing principles would be **ideal** for helping students achieve desired student performance.

Step 2 – State the **reasons** for deciding that those sequencing principles would be ideal.

Step 3 – Describe the sequencing principles which are associated with **present** curriculum content.

Step 4 – **Analyze gaps** between the sequencing principles which would be ideal and the sequencing principles associated with present curriculum content. **Identify improvement requirements** related to content sequencing.

Explanations of each planning step are provided in the text and should be read before you attempt to work through any of the steps. An example illustrating how to complete the steps follows the explanations. At the end of the section, there is an information sheet to be used in recording your own planning decisions.

STEP 1: SELECTING IDEAL CONTENT SEQUENCING

Content sequencing principles can be derived from a variety of sources including: (1) experience or observation of the world, (2) the logical structure of existing knowledge, (3) methods of intellectual inquiry used to generate, discover, or verify knowledge, (4) assumptions about the psychology of learning, and (5) the conditions under which knowledge can be or could be used. To assist you in selecting content sequencing principles which would be ideal, some of the content sequencing principles associated with each source are described below:

SEQUENCING PRINCIPLES

☐ EXPERIENCE OR OBSERVATION OF THE WORLD – Content is sequenced in terms of the way reality is organized.

_____ Chronological Order

_____ Spatial Relationships

_____ Physical Characteristics

_____ Other (Specify)

☐ STRUCTURE OF KNOWLEDGE – Content is sequenced in terms of the logical way(s) in which existing knowledge has been or can be organized.

_____ Generalization to Specific Example

_____ Specific Example to Generalization

_____ Simple to Complex

_____ Concrete to Abstract

_____ Less Refined to More Refined (Spiral)

_____ Rule/Theory/Principle to Application of Rule/Theory/Principle

_____ Pre-Requisite Order of Concepts

_____ Other (Specify)

☐ METHODS OF INTELLECTUAL INQUIRY – Content is sequenced in terms of the step-by-step thinking procedures associated with specific thinking strategies.

_____ Instances of Generalization to Discovery of Generalization

_____ Hypothesis to Testing of Hypothesis

_____ Generalization to Application of Generalization in Specific Instances

☐ PSYCHOLOGY OF LEARNING – Content is sequenced in terms of experience or theory-based rules or assumptions about which content must necessarily precede the learning of other content, which content is more likely to facilitate learning, which content is most compatible with the learner's level of psychological readiness to learn.

_____ Pre-Requisite Order of Skills

_____ More Familiar to Less Familiar

_____ Less Difficult to More Difficult

_____ More Interesting to Less Interesting

_____ Progressive Stages of Human Development

_____ Awareness/Interest to Internalized Attitude/Value

_____ Other (Specify)

☐ CONDITIONS OF USE – Content is sequenced in terms of degree of relevance to user needs, in terms of step-by-step procedures for performing a job or task or for solving problems, or in terms of potential frequency of use.

_____ Higher Relevance to Lesser Relevance (Personal, Social or Career)

_____ Pre-Requisites for Job/Task Performance

_____ Step-by-Step Problem-Solving Procedures

_____ Higher Frequency of Use to Lesser Frequency of Use

_____ Other (Specify)

STEP 2: REASONS FOR SELECTING IDEAL SEQUENCING PRINCIPLES

Your reasons for choosing some sequencing principles will be clearly related to the types(s) of ideal content just selected. Other sequencing principles will be suggested by desired student behaviors and/or student characteristics. The important thing is that you have a consistent set of reasons to justify your decisions about ideal sequencing principles. These are the kinds of questions you should be asking as you attempt to select ideal sequencing principles:

- **What sequencing principle(s) are already pre-determined or implied by the type(s) of ideal content selected?**

EXAMPLE

Type of Content	Type(s) of Sequencing Principles
Methods and Procedures in Mathematics	Pre-Requisite Order of Skills

- **What sequencing principle(s) would provide the best vehicle(s) for promoting desired student behavior(s)?**

EXAMPLE

Student Behavior	Type(s) of Sequencing Principles
Students should find the study of math interesting.	More Interesting to Less Interesting

- **What sequencing principle(s) are suggested by the characteristics of your student population(s)?**

EXAMPLE

Student Characteristics	Type(s) of Sequencing Principles
Students have reading problems and seem to be indifferent toward the study of math.	More Familiar to Less Familiar (Vocabulary and Roles in Word Problems). More Relevant to Less Relevant (Student Activities Involving Math).

STEP 3: DESCRIBING PRESENT CONTENT SEQUENCING

At this step, the sequencing principles associated with your present curriculum content will be described. The type(s) of sequencing principles outlined on pages 2-20 and 2-21 can be used as a guide in completing this step.

STEP 4: ANALYZING GAPS AND IDENTIFYING IMPROVEMENT REQUIREMENTS

Once you have completed the first three steps of (1) choosing ideal content sequencing principles, (2) providing reasons for your decisions, and (3) describing the sequencing principles associated with your present curriculum content, you should be able to determine whether any gaps exist between your ideal content sequencing principles and the content sequencing principles associated with your present curriculum. Where gaps are evident, improvement requirements should be stated.

Stop now and review (1) the type(s) of ideal content you have specified on Information Sheet #1 and (2) your worksheet on desired student performance. Then discuss the example provided on pages 2-25 and 2-27 before proceeding.

EXAMPLE

CONTENT SEQUENCING

IDEAL CONTENT SEQUENCING		REASONS
Types of Content	Sequencing Principles	
Key Concepts	Pre-Requisite Order of Concepts	Mastery of basic skills in math involves a hierarchy of interrelated learning objectives. Certain concepts in math are pre-requisite to the learning of other concepts.
Rules and Relationships	Rule to Application of Rule	Rules are traditionally taught before the application of rules.
Methods and Procedures	Pre-Requisite Order of Skills	Mastery of basic skills in math involves a hierarchy of interrelated learning objectives. Certain skills in math are pre-requisite to the learning of other skills.
Student Interests	More Interesting to Less Interesting	Emphasizing content which possesses greater interest for students at a given point in time should help overcome student indifference and foster positive attitudes toward the study of math.
Student Activities	Higher Relevance to Lesser Relevance (Personal)	Mathematics content which has greater relevance to student activities will be perceived by them as relevant.
Life Roles in Society	More Familiar to Less Familiar	Students' ability to apply basic math operations will be improved if word problems involve a vocabulary and reflect social and economic roles which are more familiar to the students.

PRESENT CONTENT SEQUENCING	
Types of Content	Sequencing Principles
Key Concepts	Pre-Requisite Order of Concepts
Rules and Relationships	Rule to Application of Rule
Methods and Procedures	Pre-Requisite Order of Skills

EXAMPLE

CONTENT SEQUENCING (Continued)

IDEAL CONTENT SEQUENCING		REASONS
Types of Content	Sequencing Principles	
Practical Life Skills	Simple to Complex Less Refined to More Refined (Spiral)	Consumer skills necessary for economic survival range from the ability to analyze the accuracy of basic information about products and services to complex judgments based upon comparative multi-criteria evaluations of products and services. Since the student already is and will continue to be involved in a wide variety of consumer situations, the skills emphasized should encourage transfer and be capable of being expanded in new and more complex life situations.

PRESENT CONTENT SEQUENCING	
Types of Content	Sequencing Principles

IMPROVEMENT REQUIREMENTS	PREFERENCES
1. Math content dealing with student interests should be sequenced to emphasize topics of greatest interest to students. 2. Math content dealing with student activities should be sequenced to emphasize topics of the greatest personal relevance to students. 3. Math content (word problems) dealing with life roles in society should be sequenced in terms of the vocabulary and social/economic roles most familiar to the students at each stage of their development. 4. Math content dealing with practical life skills should be sequenced in terms of simpler to more complex skills, emphasizing progressive extension and expansion of the use of those skills in new learning situations.	

INFORMATION SHEET #2

CONTENT SEQUENCING

Directions: Review your school system's need definition, particularly student behaviors and any information related to student characteristics. Then discuss which types of sequencing principles would be ideal for promoting desired student performance and provide reasons for your decisions.

Describe the sequencing principles associated with the content of your present curriculum. Then compare the ideal sequencing principles selected with the sequencing principles associated with the content of your present curriculum. When gaps exist, identify the specific kinds of improvement which are required. Note other improvements which represent strong preferences, but are not considered essential.

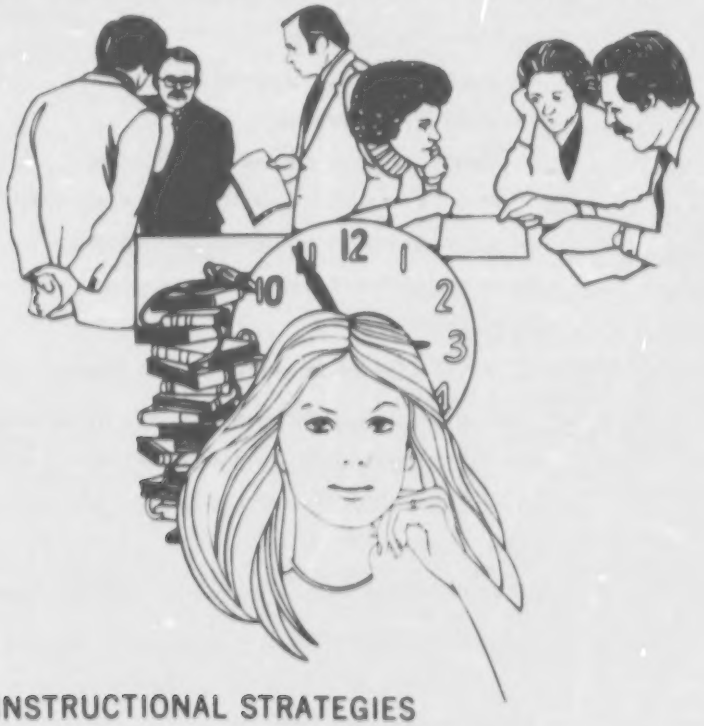
IDEAL CONTENT SEQUENCING		REASONS
Types of Content	Sequencing Principles	

PRESENT CONTENT SEQUENCING	
Types of Content	Sequencing Principles

IMPROVEMENT REQUIREMENTS	PREFERENCES

INSTRUCTIONAL APPROACH

The two previous sections in this unit helped you identify improvement requirements related to curriculum content and content sequencing. This section deals with instruction. An ideal instructional approach is an approach which includes a carefully selected combination of specific instructional strategies which are designed to help students achieve desired student performance. A variety of instructional strategies you may want to consider in your planning are discussed in this section: learning objectives, assessment of learning needs, diagnosis of learning needs, placement, student motivation, instructional sequence, pacing, instructional methods, instructional settings, instructional media, primary roles of the student, primary roles of the teacher, instructional activities, and performance evaluation.



INSTRUCTIONAL STRATEGIES

☐ LEARNING OBJECTIVES – Specifying desired student performance in behavioral terms.

____ Specified in Advance
____ Related to Instructional Materials
____ Modified during Instruction
____ Developed during Instruction
____ Unspecified
____ Other (Specify)

☐ ASSESSMENT OF LEARNING NEEDS – Identifying student performance goals and/or problems.

____ Based on Comparison with Group Norm
____ Based on Mastery of Specific Instructional Objectives
____ Based on Other Objective Criteria
____ Based on Subjective Criteria
____ Other (Specify)

☐ DIAGNOSIS OF LEARNING NEEDS – Analyzing particular student behaviors to be improved and/or student learning characteristics.

____ Learning Prerequisites
____ Objectives Already Mastered by Student
____ Student Error Patterns
____ Probable Causes of Learning Difficulties
____ Physical, Emotional, Psychological, Cognitive, Social Development of Student
____ Student Learning Preferences or Interests
____ Student Learning Styles
____ Other (Specify)

☐ PLACEMENT – Deciding where to begin student instruction.

____ Individual Student Performance on Standardized Test
____ Individual Student Performance on Criterion-Referenced Test
____ Individual Student Placement Decisions Made by Previous Teacher
____ Other (Specify)

☐ STUDENT MOTIVATION – Encouraging student learning.

____ Based on Student's Need to Achieve or Succeed
____ Based on Student's Curiosity or Desire to Explore
____ Based on Student's Interests
____ Based on Immediate and Specific Feedback on Student's Performance
____ Based on General Praise or Approval
____ Based on Material Rewards
____ Based on Acceptance by Peer Group, Parents, or Teachers
____ Based on Increased Student Freedom of Choice
____ Other (Specify)

☐ INSTRUCTIONAL SEQUENCE – Organizing and/or varying the order of student instruction.

____Objectives: Fixed Sequence
____Objectives: Flexible Sequence
____Objectives: Alternate Sequences
____Curriculum Content: Fixed Sequence
____Curriculum Content: Flexible Sequence
____Curriculum Content: Alternate Sequences
____Instructional Activities: Fixed Sequence
____Instructional Activities: Flexible Sequence
____Instructional Activities: Alternate Sequences
____Other (Specify)

☐ PACING – Determining the rate of student progress through the instructional sequence.

____Group Paced
____Individually Paced
____Student Self-Paced
____Other (Specify)

☐ INSTRUCTIONAL METHODS – Engaging students in the learning process.

____ Drill and Practice
____ Programmed Instruction
____ Lecture (Presentation by Teacher)
____ Demonstration
____ Explanation
____ Question and Answer
____ Discussion
____ Group Problem Solving
____ Guided Discovery
____ Inquiry
____ Direct Experience
____ Simulation, Role Play
____ Computer, Programmed Learning Machine
____ Other (Specify)

☐ INSTRUCTIONAL SETTINGS – Establishing appropriate student learning situations.

____ Self-Instructional Study (Study by oneself)

____ Teacher Tutoring

____ Peer (Student) Tutoring

____ Small Group Instruction

____ Large Group Instruction

____ Seminar

____ Independent Study (Self-directed study independent of regularly structured curriculum)

____ Other (Specify)

☐ INSTRUCTIONAL MEDIA – Presenting instructional content in print, audio-visual, or manipulative form.

____ Printed Texts, Workbooks, Learning Activity Packs, etc.

____ Visual: Slides, Films, Film Loops, Filmstrips, Television, Videotapes, Exhibits or Displays, Posters and Charts, Overhead Transparencies

____ Audio: Tape Cassettes, Tape Recordings, Radio, Records

____ Manipulative: Objects, Models, Kits

____ Other (Specify)

☐ PRIMARY ROLES OF STUDENTS – Specifying how the student should function in the learning environment.

____ Accept Direction

____ Assimilate Information

____ Practice

____ Integrate and Process Information

____ Solve Problems

____ Interact with Others

____ Pursue Individual Interests

____ Cooperate in Planning Learning Activities

____ Manage Learning Activities

____ Assess Learning Progress

____ Select Learning Materials

____ Other (Specify)

☐ PRIMARY ROLES OF TEACHER – Specifying how the teacher should function in the learning environment.

____ Provide Direction
____ Provide Information
____ Analyze or Interpret Information
____ Guide or Facilitate Discussion
____ Demonstrate
____ Motivate Students
____ Diagnose Student Learning Needs
____ Select/Adapt Instructional Methods, Learning Settings, and Media
____ Prescribe Learning Activities
____ Tutor Individual Students
____ Assess Student Progress
____ Provide Enrichment
____ Other (Specify)

☐ INSTRUCTIONAL ACTIVITIES – Specifying how the student should interact with the teacher, other students, and/or media.

____ Reciting
____ Reading
____ Listening
____ Writing
____ Responding to Questions
____ Questioning
____ Working with Printed Texts, Worksheets, Exercises
____ Working with Multi-Media Learning Materials
____ Conferring with Teacher or Another Student
____ Participating in Group Discussion
____ Discovering through "Hands On" Experience
____ Researching or Investigating
____ Demonstration
____ Planning and Conducting Projects
____ Participating in Games
____ Participating in Field Trips
____ Other (Specify)

☐ **PERFORMANCE EVALUATION – Gathering information about student progress and student needs.**

____ Frequent Evaluation

____ Infrequent Evaluation

____ Broad Content Mastery Evaluated

____ Mastery of Small Units of Content Evaluated

____ Mastery of Individual Objectives Evaluated

____ Affective Development Evaluated

____ Other (Specify)

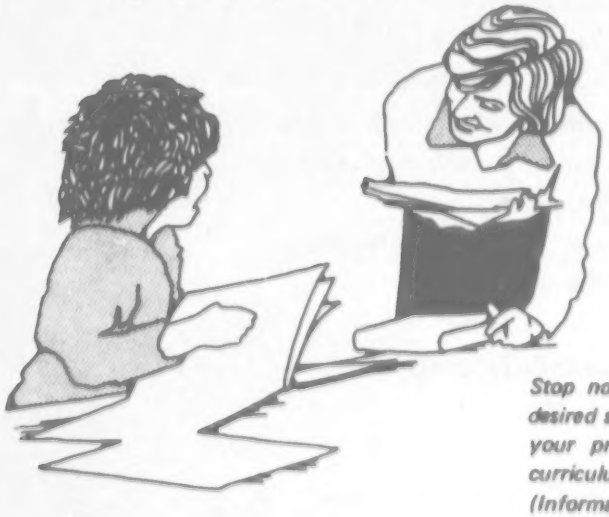
In this section, you will be using the same four planning steps you used in the two previous sections to identify improvement requirements related to instruction:

Step 1 – Decide which instructional strategies would be **ideal** for helping students achieve desired student performance.

Step 2 – State the **reasons** why you decided that those instructional strategies would be ideal.

Step 3 – Describe the strategies associated with the **present** instructional approach.

Step 4 – **Analyze gaps** between the instructional approach which would be ideal and the present instructional approach. **Identify improvement requirements** related to instruction.



Stop now and review (1) your worksheet on desired student performance (page 2-7) and (2) your previous planning decisions related to curriculum content and content sequencing (Information Sheets #1 and #2, pages 2-17 and 2-29). Then discuss the example provided on pages 2-37 to 2-41 before proceeding.

EXAMPLE

INSTRUCTIONAL APPROACH

IDEAL INSTRUCTIONAL APPROACH	RATIONALE	PRESENT INSTRUCTIONAL APPROACH
Instructional Strategies		Instructional Strategies
DIAGNOSIS OF LEARNING NEEDS		DIAGNOSIS OF LEARNING NEEDS
Objectives Already Mastered by Student	Teachers must be able to identify which objectives in the math continuum students have already mastered in order to plan for the improvement of their performance in basic math operations. The same principle applies to the improvement of student performance in the area of problem-solving, where multiple learning objectives can be involved in the solution of a single word problem or consumer applications problem.	Diagnostic instruments presently used by teachers allow them to track student mastery of basic math skill objectives.
Probable Causes of Learning Difficulties	In many cases, it is not clear whether student attitudes or lack of basic skills or reading difficulties, etc., are impeding student progress. An instructional approach with specific provisions for analyzing the probable causes of learning difficulties is highly desirable.	Teacher judgment is used to determine probable causes of learning difficulties.
Student Learning Preferences or Interests	Widespread student indifference toward math suggests that careful analysis of their learning preferences and interests should be a component of the math program and closely integrated with instructional planning.	
INSTRUCTIONAL METHODS		INSTRUCTIONAL METHODS
Programmed Instruction	Practice and reinforcement are the key to student mastery of basic skills in math. Programmed instruction provides regularly sequenced opportunities for practice and reinforcement in the application of basic math concepts and rules.	Programmed instruction is used extensively in teaching basic skills.
Group Problem Solving	Group problem-solving is a highly dynamic method for integrating traditional math content with student interests and life experiences. It would allow students to use vocabulary and assume roles which are compatible with the vocabulary and roles of their everyday lives.	

EXAMPLE

INSTRUCTIONAL APPROACH (Continued)

IDEAL INSTRUCTIONAL APPROACH	RATIONALE	PRESENT INSTRUCTIONAL APPROACH
Instructional Strategies		**Instructional Strategies**
Direct Experience	Direct involvement in consumer activities would appear to be the best method for teaching students the math skills they will need for economic survival.	Some teachers incorporate practical consumer activities in their courses.
INSTRUCTIONAL MEDIA		INSTRUCTIONAL MEDIA
Printed Workbooks	Given the progressive nature of basic skills instruction, a series of preprinted workbooks with consumable worksheets should be used.	Programmed texts include instructional materials and consumable worksheets.
Visual: Slides, Filmstrips	Many students today are visually oriented. Furthermore, students experiencing difficulty with math applications because of poor reading skills should be provided with alternatives to printed learning media.	Several general filmstrips on math concepts are available for use by teachers.
Audio: Tape Cassettes	Tapes can be used by students on an individual basis for practice and reinforcement of basic arithmetic skills.	
STUDENT MOTIVATION		STUDENT MOTIVATION
Based on Student's Need to Achieve or Succeed	Many of the students currently unable to achieve desired performance in higher order math processes have a history of academic failure. They must have success experiences to overcome their sense of frustration and low self-esteem before any significant improvement in their math performance can be expected.	
Based on Student's Interests	Students are more likely to want to learn when instruction taps their existing interests. Since the majority of students appear indifferent toward the study of math, student interests would appear to be a prime motivational consideration.	
Based on Immediate and Specific Feedback on Student's Performance	Immediate and specific feedback on performance is considered to reinforce desired performance. Students attempting to master a hierarchy of prerequisite math skills should benefit from this type of feedback, particularly when repeated opportunities for practice and positive reinforcement occur.	The programmed instructional approach presently used for basic skills instruction is designed to provide students with immediate and specific feedback on their performance.

EXAMPLE

INSTRUCTIONAL APPROACH (Continued)

IMPROVEMENT REQUIREMENTS	PREFERENCES
1. Instructional approach should provide for diagnosis of student learning needs in terms of (a) objectives already mastered in multiple-objective learning situations and (b) learning preferences and interests.	1. Instructional approach should include specific provisions for analyzing the probable causes of learning difficulties.
2. Instructional approach should place greater emphasis on programmed instruction and direct experience.	2. Instructional approach should incorporate group problem-solving.
3. Instructional approach should at least include guidelines for integrating math instruction with student consumer experiences.	
4. Instructional approach should employ visual and audio as well as print media.	
5. Instructional approach should provide low-achieving students with opportunities to experience success.	
6. Instructional approach should be tailored to student interests.	

INFORMATION SHEET #3

INSTRUCTIONAL APPROACH

Directions: Select the instructional strategies which are most critical to your ideal instructional approach. Then indicate the specific options which you consider to be appropriate for promoting desired student performance. Provide a rationale for each decision based upon desired student performance, student characteristics, and/or the implications of your previous planning decisions (Information Sheets #1 and #2, pages 2-17 and 2-29).

IDEAL INSTRUCTIONAL APPROACH	RATIONALE	PRESENT INSTRUCTIONAL APPROACH
Instructional Strategies		Instructional Strategies

IMPROVEMENT REQUIREMENTS	PREFERENCES

SUPPORT SYSTEM

The three previous sections in this unit helped you identify improvement requirements related to curriculum content, content sequencing, and instructional approach. This section deals with the support system for instruction. An ideal support system consists of human and material resources which have been carefully organized to increase the effectiveness and efficiency of instruction. The following support system strategies are discussed in this section: staffing arrangements, equipment, facilities, materials management, student grouping, scheduling, and recordkeeping.

SUPPORT SYSTEM STRATEGIES

☐ STAFFING ARRANGEMENTS – Organizing staff to make optimal use of their knowledge and skills.

1. *Subject Matter Assignments*

___ Self-Contained Classroom	One teacher for all subjects
___ Departmentalized	Different teacher for each subject
___ Semi-Departmentalized	Different teacher for each subject except for several subjects which are combined in a core curriculum
___ Other (Specify)	

2. *Planning of Instruction*

___ Teacher Plans on Individual Basis	
___ Several Teachers Engage in Cooperative Planning	Independent in terms of actual instruction
___ Team of Teachers Engage in Cooperative Planning	Still independent in terms of actual instruction
___ Other (Specify)	

3. *Responsibility for Instruction*

___ Individual Teacher Instructs Students	
___ Several Teachers Exchange Some Students for Instruction	
___ Several Teachers Conduct Joint Instruction	
___ Team of Teachers Share Instructional Tasks	Staff functions based on differences in preparation, interests, etc.
___ Other (Specify)	

4. *Instructional Roles*

____ Team Leader with some Administrative Responsibilities	Master Teacher, Unit Leader, etc.
____ Specialist Teacher	
____ Regular Staff Teacher	
____ Student Intern	Student Teacher
____ Instructional Aide	Paraprofessional, Paid or Volunteer
____ Other (Specify)	

5. *Support Roles*

____ Educational Specialist	Subject Matter Expert, Curriculum Coordinator, Evaluator, Counselor, etc.
____ Media Specialist	Media Design Specialist, Audio-Visual Technician, etc.
____ Consultant	Materials Management, Inventory and Ordering, etc.
____ Aide	
____ Clerk Typist	
____ Other (Specify)	

☐ EQUIPMENT – Arranging equipment to provide flexible support for instruction.

1. *Mobility of Equipment*

____ Portable Media Equipment	Filmstrip, Film or Overhead Projectors, Record or Tape Players, etc.
____ Fixed or Stationary Media Equipment	Large Screen Projectors, Central Audio Source, etc.
____ Fixed Furnishings	
____ Movable Furnishings	
____ Fixed Storage or Supply Cabinets	
____ Movable Storage or Supply Cabinets, Carts, etc.	
____ Other (Specify)	

2. *Special Arrangements and Conditions*

____ Special Fixtures/Outlets, etc.

____ Limited Compatibility of Equipment — Size of Videotape Accepted by Different Recorders, etc.

____ Full Compatibility of Equipment

____ Other (Specify)

☐ FACILITIES – Providing diversified learning space to accommodate various instructional purposes and learning styles.

1. *Functional Learning Space*

____ Media Area for Use by Individual Students — Viewing, Listening Carrels, etc.

____ Media Area for Use by Groups of Students — Film Theater, etc.

____ Quiet Area for Independent Study

____ Quiet Area for Reading

____ Group Meeting or Discussion Area

____ Secluded Area for Tutoring or Individual Conferences

____ General Learning Space for Lecture, Large Group Demonstration, Discussion

____ High Physical Activity Area

____ Laboratory Area

____ Accessible Area for Scoring/Correction of Student Tests, etc.

____ Community Sites

____ Industrial Sites

____ Other (Specify)

2. *Flexibility of Learning Space*

____ Traditional Classroom (Fixed Room Arrangement)

____ Traditional Classroom (Flexible Room Arrangement)

___ Multi-Purpose Room — General Learning Space with Portable Dividers

___ Learning Resource Center

___ Special Purpose Center — Writing Center, etc.

___ Open Space Area

___ Other (Specify)

3. *Accessibility of Learning Space*

___ Near to Learning Resource Center or Library

___ Near to Materials and/or Equipment Storage Areas

___ Near to Other Functional Learning Areas

___ Other (Specify)

4. *Special Arrangements or Environmental Conditions*

___ Laboratories (Science)

___ Learning Laboratories

___ Special Teacher/Aide Stations

___ Special Lighting, Acoustics, Furniture, etc.

___ Other (Specify)

☐ MATERIALS MANAGEMENT – Insuring that learning materials are available and accessible when needed by teachers and by students.

1. *Accessibility of Materials*

___ Central Storage of Materials

___ Decentralized Storage of Materials

___ Portable Storage of Materials

___ Materials Accessible to Teachers Only

___ Materials Accessible to Teachers and Aides

___ Materials Accessible to Teachers, Aides, and Students

___ Other (Specify)

2. *Ordering and Replacement of Materials*

____Frequent Inventory and Replacement of Materials by Teacher or Aide

____Infrequent Inventory and Replacement of Materials

____Other (Specify)

3. *Variety of Materials*

____Variety of Alternative Materials in Case of High Demand and Limited Supply

____Limited Variety of Alternative Materials

____Other (Specify)

☐ STUDENT GROUPING – Organizing students to facilitate their progress through the curriculum and to provide individual students with maximum opportunities for academic, personal, and social development.

1. *Vertical Grouping*

____Traditional Age-Graded System

____Multi-Age or Multi-Graded System

____Nongraded System — Continuous progress

____Other (Specify)

2. *Horizontal Grouping: Inter-Class*

____Homogeneous — Based on likeness in terms of age, interests, ability, achievement or performance, learning style, learning difficulties, etc.

____Heterogeneous — Social integration of student population, activities, projects, etc.

____Individual Alone

____Other (Specify)

3. *Horizontal Grouping: Intra-Class*

____Homogeneous

____Heterogeneous

____Individual Alone

____Other (Specify)

4. *Frequency of Regrouping*

___ Frequent Regrouping

___ Occasional Regrouping

___ Little or No Regrouping

___ Other (Specify)

5. *Basis for Regrouping*

___ General Observation of Overall Needs of Students as a Group

___ Regular Review of Individual Student's Peformance in Terms of Group Norms

___ Individual Student's Mastery of Specific Objectives

___ Diagnosis of Individual Student's Learning Difficulties

___ Differences in Individual Learning Style, Motivation, etc.

___ Student Interests and Preferences

___ Student Review and Diagnosis of Own Performance

___ Other (Specify)

☐ SCHEDULE – Tailoring time to instructional requirements.

1. *Flexibility of Schedule*

___ Fixed	Regularly Scheduled Class Periods
___ Variable or Modular	Flexibly Scheduled Blocks of Time
___ Mixed	Some Regularly Scheduled, Some Flexibly Scheduled
___ Open	Unscheduled

___ Other (Specify)

☐ RECORD KEEPING – Designing efficient methods for tracking and monitoring student progress.

1. *Methods*

___ Flow Charts of Student Progress by Learning Level, by Objective

____ Computer Bank of Information on Student Progress	Usually takes the form of a computer printout for teacher
____ Files of Test Results (Hand or Machine Scored)	
____ Logs of Activities	May be kept by student, by teacher, or by aide
____ Folders of Work Samples	
____ Pre-Printed Profiles	May be kept by student, by teacher, or by aide
____ Observational Checklists	
____ Anecdotal Records of Student Progress	
____ File Cards	Card-sort is a technique often used for student grouping purposes
____ Other (Specify)	

In this section, you will be using the same four planning steps you used in the three previous sections to identify improvement requirements related to the support system:

Step 1 – Decide which support system strategies would be **ideal** for increasing the effectiveness and efficiency of instruction.

Step 2 – State the **reasons** why you decided that those support system strategies would be ideal.

Step 3 – Describe the strategies associated with the **present** support system.

Step 4 – **Analyze gaps** between the support system which would be ideal and the present support system. Identify improvement requirements.

Stop now and review (1) your worksheet on desired student performance (page 2-7) and (2) your previous planning decisions related to curriculum content, content sequencing, and instruction (Information Sheets #1, #2, #3, pages 2-17, 2-29, and 2-43). Then discuss the example provided on pages 2-53 to 2-57 before proceeding.

EXAMPLE

SUPPORT SYSTEM

IDEAL SUPPORT SYSTEM	RATIONALE	PRESENT SUPPORT SYSTEM
Support System Strategies		**Support System Strategies**
STAFFING ARRANGEMENTS		STAFFING ARRANGEMENTS
1. **Planning of Instruction**		1. **Planning of Instruction**
• Team of teachers engage in cooperative planning.	Under the ideal instructional approach, teachers would possess detailed diagnostic information about individual student needs (e.g., objectives mastered, learning preferences and interests). A single teacher planning in isolation is hard-pressed to tailor instruction to such a wide array of individual needs. Team planning of instruction should be used because it will encourage pooling of expertise and instructional resources.	• Teachers plan on an individual basis.
2. **Responsibility for Instruction**		2. **Responsibility for Instruction**
• Several teachers conduct joint instruction.	Where several teachers have complementary knowledge and skills and/or students with common learning needs, joint instruction should be an option.	• Individual teacher instructs students.
FACILITIES		FACILITIES
1. **Functional Learning Space**		1. **Functional Learning Space**
• Media area for use by individual students and by groups of students.	Special media areas should be provided in the learning resource center to accommodate the increased instructional use of audio-visual media.	• Small media areas in some classrooms.
• Community sites.	Community sites should be used to provide students with direct experience in dealing with practical problems which will foster the development of consumer skills.	
MATERIALS MANAGEMENT		MATERIALS MANAGEMENT
1. **Accessibility of Materials**		1. **Accessibility of Materials**
• Materials accessible to teachers, aides, students.	Programmed instructional materials for basic skills development can be most efficiently managed if they are readily accessible to teachers, aides, students.	• Materials accessible to teachers and aides.

EXAMPLE

SUPPORT SYSTEM (Continued)

IDEAL SUPPORT SYSTEM	RATIONALE	PRESENT SUPPORT SYSTEM
Support System Strategies		Support System Strategies
STUDENT GROUPING		STUDENT GROUPING
1. **Intra-Class**		1. **Intra-Class**
• Homogeneous and heterogeneous grouping.	Desired student performance includes multiple learning objectives (basic skill, attitudinal, problem-solving, etc.) to be achieved within a single learning environment. Homogeneous grouping should be used when grouping students with similar learning problems, styles, etc., is most likely to elicit desired student performance. Heterogeneous grouping should be used when the diversity of student interests, consumer experiences, skills, etc., is most likely to elicit desired student performance.	• Homogeneous grouping for students with similar basic skills learning problems. Heterogeneous grouping for large group presentations, projects, etc.
2. **Basis for Regrouping**		2. **Basis for Regrouping**
• Individual student's mastery of specific objectives. • Diagnosis of individual student's learning difficulties. • Differences in individual learning style, motivation, etc. • Student preferences and interests.	Instructional approach requires diagnosis of objectives mastered by students. Regrouping should occur in accordance with progressive student mastery of objectives. If possible, students should be regrouped for special remedial instruction when common learning difficulties can be identified. The instructional approach incorporates both print and audiovisual media. Regrouping should occur when instructional media more appropriate to the student's preferred learning style are available. Regrouping should also occur when necessary to accommodate changing student motivation and interests.	• Regrouping on the basis of progressive student mastery of specific skill objectives. Some regrouping on the basis of learning difficulties. Some regrouping to accommodate changing student motivation.
RECORD KEEPING		
1. **Methods**		
• Flow charts of student progress by objective.	While content will be organized in terms of consumer problems, it will still parallel the skills sequence of the math continuum. It would be very helpful if teachers could display diagnostic information about skill objectives mastered by students on some kind of master flow chart.	

EXAMPLE

SUPPORT SYSTEM (Continued)

IMPROVEMENT REQUIREMENTS	PREFERENCES
1. Teachers should engage in cooperative planning of instruction.	1. Teachers would engage in joint instruction when their students had common learning needs and/or several teachers had complementary knowledge and skills.
2. Special media areas for individual and group use should be provided in the learning resource center.	2. Regrouping would occur for special remedial instruction when common learning difficulties were identified.
3. Community sites should be used to provide students with direct consumer problem-solving experiences.	3. Diagnostic information about skill objectives mastered by students would be displayed on a master flow chart.
4. Programmed instructional materials should be available to teachers, aides, and students.	
5. Both homogeneous and heterogeneous student grouping should be used in the classroom.	
6. Regrouping should occur when instructional media more appropriate to the student's learning style are available, and when necessary to accommodate changing student motivation and interests.	

INFORMATION SHEET #4
SUPPORT SYSTEM

Directions: Describe the strategies and options which would constitute an ideal support system for instruction. Then provide a rationale for each decision based upon desired student performance, student characteristics, and/or the resource implications of your previous planning decisions (Information Sheets #1, #2, and #3, pages 2-17, 2-29, and 2-43). Finally, describe the strategies and options associated with your school system's present support system. Identify specific improvement requirements and preferences in the space provided below.

IDEAL SUPPORT SYSTEM	RATIONALE	PRESENT SUPPORT SYSTEM
Support System Strategies		Support System Strategies

IMPROVEMENT REQUIREMENTS	PREFERENCES

IMPROVEMENT REQUIREMENTS

In this section, you are asked to refine your improvement requirements using a six-step process:

Step 1 – **Summarize** all improvement requirements.

Step 2 – Select appropriate **means of improvement.**

Step 3 – Revise improvement requirements to correspond with the means of improvement selected.

Step 4 – Consider **opportunities** and **constraints** associated with each improvement requirement.

Step 5 – Decide which improvement requirements are **action priorities.**

Step 6 – **Screen** all improvement requirements to identify those involving a search for means of improvement.

A **single** information sheet (Information Sheet #5, page 2-69) should be used to record all decisions made as you work through this section. An example illustrating how the information sheet is to be completed immediately precedes the information sheet. You should review Information Sheets #1, 2, 3, and 4 (pages 2-17, 2-29, 2-43 and 2-59) before beginning.

Stop now and turn to page 2-67 and examine the example before proceeding. When you have finished with the example, return to page 2-62.

STEP 1: SUMMARIZING IMPROVEMENT REQUIREMENTS

The first step in refining your improvement requirements is to summarize them. Your improvement requirements are listed on the Information Sheets which you have completed as you worked through Unit 2. There are four such Information Sheets, dealing with curriculum content, content sequencing, instructional approach, and the support system.

This is an opportunity for you to check on the consistency and the comprehensiveness of all of your improvement requirements. Where some of your improvement requirements appear repetitious or overlapping, you can delete or synthesize those requirements. Where certain requirements now appear to represent preferences rather than true requirements, this is an opportunity for you to further clarify which of your requirements are essential and which are not essential to improvement.

Stop now and review Information Sheets #1, 2, 3, and 4 (pages 2-17, 2-29, 2-43, and 2-59). Use Information Sheet #5 (page 2-69) to summarize your improvement requirements. Return to page 2-62 when finished summarizing your requirements.

STEP 2: SELECTING MEANS OF IMPROVEMENT

The second step is to select specific **means of improvement** for your improvement requirements. There are many ways of improving present practice. Three means of improvement commonly used by school systems are:

1. Student Learning Materials
2. Administrative and Staff Development
3. Resource Allocation

Student Learning Materials

There are a variety of student learning materials which can be used to improve present practice: hardback or paperback textbooks, books, consumable booklets, programmed systems, reference works, periodic publications, films, filmstrips, audio and video tapes, records and cassettes, slides, kits of realia, manipulative objects, games, graphic items, (maps, charts, posters) and the like. These materials can play a supplementary, central, or exclusive role in the actual learning experience of the student. In scope, they can range from a complete instructional system with prescribed strategies which are an integral part of the system, to kits of manipulative devices which can be used in many different learning environments.

Administrative and Staff Development

There are a wide variety of formal and informal ways of developing the knowledge and skills of administrators and staff in order to improve present practice: training programs, workshops, consultant services, internships, handbooks, manuals, multi-media presentations, simulations, self-instructional materials, videotaped demonstrations, laboratory experiences, and problem-solving exercises. Professional development can emphasize growth in theoretical and/or disciplinary knowledge, in technical skills (e.g., planning, organization and management, implementation, and evaluation), and/or behavioral skills (e.g., motivation, communication).

Resource Allocation

There are diverse methods of resource allocation which can be used to improve present practice. Time, space, equipment, personnel, and students represent an intricate and interdependent set of variables. Methods of resource allocation stress ways human and material resources can be organized, assigned, distributed, and/or made available to create and sustain a learning environment which is both effective and efficient.

Stop now and review the improvement requirements you have outlined on Information Sheet #5, page 2-69. Discuss which means of improvement are most appropriate for each requirement. Then list the means of improvement selected for each requirement, recognizing that in some cases more than one means of improvement may be involved. When you have finished, return to page 2-63.

STEP 3: REVISING IMPROVEMENT REQUIREMENTS

The third step is to **revise** your improvement requirements so that they are useful for locating specific means of improvement. Your improvement requirements should clearly indicate:

1. the kind and quality of improvement to be achieved through the means selected, and
2. the educator and/or student populations to be impacted.

EXAMPLE

IMPROVEMENT REQUIREMENTS	MEANS OF IMPROVEMENT	IMPROVEMENT REQUIREMENTS (REVISED)
Content should be relevant to student experience.	Student Learning Materials	Content should be relevant to the economic and social experiences of middle class suburban students, grades 4-6.
Instructional approach should emphasize direct experience.	Administrative and Staff Development	Teachers in grades 4-6 should be able to plan an instructional approach which emphasizes direct experience.
Students should be regrouped when necessary to accommodate changing student motivation and interests.	Administrative and Staff Development	Teachers in grades 4-6 should develop specific techniques for identifying changing student motivation and interests.
	Resource Allocation	Administrators should create a schedule which allows teachers in grades 4-6 to exchange students for purposes of grouping according to similar motivation and interests.

In the first instance, the improvement requirement has been revised in order to specify in greater detail the kind and quality of improvement to be achieved and the student population to be impacted. It has not, however, been substantially changed by the means of improvement selected (Student Learning Materials). In the second and third instances, the improvement requirements have been substantially changed by the means of improvement selected. The requirement that direct experience be emphasized in the instructional approach has been converted into a requirement that teachers be able to plan an instructional approach which emphasizes direct experience. The requirement that students be regrouped to accommodate changing student motivation and interests has been converted into two requirements. The first is that teachers should develop specific techniques for identifying changing student motivation and interests. The second is that administrators should create a schedule which would allow teachers to exchange students in order to group them according to similar motivation and interests.

Stop now and review your improvement requirements and related means of improvement. Revise your requirements so that they clearly indicate (1) the kind and quality of improvement to be achieved, and (2) the student and/or educator populations to be impacted. Use Information Sheet #5 (page 2-69) to make necessary revisions, and then return to page 2-65.

STEP 4: CONSIDERING OPPORTUNITIES AND CONSTRAINTS

The fourth step is to assess the feasibility of your improvement requirements. It may not be practically possible for your school system to deal with all of the improvement requirements you have identified. There are many factors which influence efforts to improve present practice. **Opportunities** are factors which favor improvement. **Constraints** are factors which in some way limit or restrict improvement. What are the particular opportunities and constraints directly associated with your improvement requirements? The following are some of the factors you may want to consider:

- Student Abilities, Achievement, Attitudes
- Staff Attitudes, Knowledge, and Skills
- Parental Cooperation
- Community Relations
- Social, Economic, and Political Influences
- Legislative Requirements
- Contractual Agreements
- School Board and District Policies
- Traditional Practice
- Attitudes and Opinions of Special Interest Groups
- Decision-Making Climate
- Funding Guidelines
- Availability of Materials and Programs
- Availability of Staff (Number and Expertise)
- Availability of Facilities and Equipment
- Flexibility of Schedule
- Levels of Staff Preparation
- Consultant or Other Support Services
- Availability of Funds

Stop now and determine which of your improvement requirements are feasible. Discuss both opportunities and constraints. Use Information Sheet #5 (page 2-69) to outline opportunities and constraints related to specific improvement requirements and then return to page 2-66.

STEP 5: CHOOSING ACTION PRIORITIES

The fifth step is to decide which improvement requirements are your school system's action priorities. Having just considered opportunities and constraints, you know which requirements are simply not feasible. Now you have to weigh which are **most important** in terms of their potential contribution to desired student performance. The improvement requirements selected as action priorities must bear a close relationship to the specific needs and characteristics of your school system's student population. They should help maximize positive elements in the present learning environment. They should be capable of being effectively and efficiently integrated with all other planned improvements in the learning environment. Finally, they should permit the school system to take full advantage of existing opportunities for improvement and to avoid or minimize major constraints.

There are several ways in which you can indicate your action priorities. Specific improvement requirements can be rated in terms of their importance as priorities (e.g., critical, very important, important, unimportant). They can also be ranked in order of their importance (e.g., #1, #2, #3).

Stop now and choose your school system's action priorities. Use Information Sheet #5 (page 2-69) to document your decisions. Then return to page 2-66.

STEP 6: SCREENING IMPROVEMENT REQUIREMENTS

The sixth step is to screen the improvement requirements which are your action priorities, separating those which demand a search for means of improvement from those which can be satisfied without a search. The term **search** is used to describe those instances in which **means of improvement must be sought outside of your immediate school system.**

Certain requirements may clearly demand a search for means of improvement. A requirement dealing with student learning materials which emphasize consumer math problems, for example, will demand a search unless such materials already exist in the school system or are readily available. Other requirements may be capable of being satisfied without a search outside of the school system. A requirement dealing with increased planning time for teachers, for example, can probably be satisfied without a search.

Stop now and decide which of your improvement requirements demand a search for means of improvement. Use Information Sheet #5 (page 2-69) to document your decisions.

EXAMPLE

IMPROVEMENT REQUIREMENTS

(1)	(2)	(3)	(4)		(5)	(6)
IMPROVEMENT REQUIREMENTS	MEANS OF IMPROVEMENT	IMPROVEMENT REQUIREMENTS (REVISED)	OPPORTUNITIES	CONSTRAINTS	ACTION PRIORITIES	SEARCH
Content should be organized in terms of consumer problems experienced by students at various stages of development.	Student Learning Materials	1. Content should be organized in terms of consumer problems experienced by students in grades 4-6 (e.g., figuring discounts, computing sales taxes, comparative pricing of grocery items).	Funds for the purchase of additional materials are available.	Such materials may be difficult to locate.	3	X
Instructional approach should provide for the diagnosis of student learning needs in terms of objectives already mastered in multiple objective learning situations.	Administrative and Staff Development	2. Teachers in grades 4-6 should be able to diagnose student performance in multiple objective learning situations.		Some teachers feel that this type of diagnosis is too complicated and not useful for instructional planning.	7	X
Instructional approach should place greater emphasis on direct experience.	Community Involvement	3. Administrators should assist with the identification of community sites which could be used to provide students with direct consumer problem-solving experiences.	The school system has a very good relationship with businessmen in the community.	Representatives of the business community expect a detailed instructional plan before they will agree to on-site student activities.	2	
Instructional approach should employ visual and audio as well as print media to accommodate students with poor reading skills.	Student Learning Materials	4. Learning materials should be available in audiovisual as well as printed form to accommodate students with poor reading skills.			4	X
Teachers should engage in cooperative planning of instruction.	Resource Allocation	5. Teachers in grades 4-6 should have regular opportunities to cooperatively plan instruction.	Teachers in grades 4-6 are already engaged in cooperative planning on an informal basis.	Scheduling common released time for all teachers may prove very difficult.	1	
Special media areas should be provided in the learning resource center for individual and group use by students.	Resource Allocation	6. Special media areas should be provided in the learning resource center for individual and group use by students.	The learning resource center is equipped with portable learning carrels and well spaced electrical outlets.		5	
Community sites should be used to provide students with direct consumer experiences.	Community Involvement	Incorporated under #3 above.				
Students should be regrouped when necessary to accommodate changing student interests and motivation.	Administrative and Staff Development	7. Teachers in grades 4-6 should develop specific techniques for identifying changing student interests and motivation.	A state service agency in the region has a consultant skilled in the assessment of student interests and motivation.		6	X
	Resource Allocation	8. Administrators should create a schedule which allows teachers in grades 4-6 to exchange students for purposes of grouping them according to similar interests and motivation.		Administration is generally willing to move toward a more flexible method of scheduling, but lacks knowledge of scheduling operations which have proven effective.	8	X

INFORMATION SHEET #5

IMPROVEMENT REQUIREMENTS

Directions: Use column 1 of the chart to summarize your improvement requirements. Then return to page 2-62. Use column 2 of the chart to indicate the means of improvement selected for each requirement in column 1. Then return to page 2-63. Use column 3 of the chart to revise your improvement requirements. Then return to page 2-65. Use column 4 of the chart to specify opportunities and constraints associated with each of your revised requirements. Then return to page 2-66. Use column 5 of the chart to indicate which improvement requirements are action priorities. Then return to page 2-66. Use column 6 of the chart to indicate which of the improvement requirements targetted for action demand a search for means of improvement.

(1)	(2)	(3)	(4)		(5)	(6)
IMPROVEMENT REQUIREMENTS	MEANS OF IMPROVEMENT	IMPROVEMENT REQUIREMENTS (REVISED)	OPPORTUNITIES	CONSTRAINTS	ACTION PRIORITIES	SEARCH

Unit 3

Planning and Conducting the Search

Developed by
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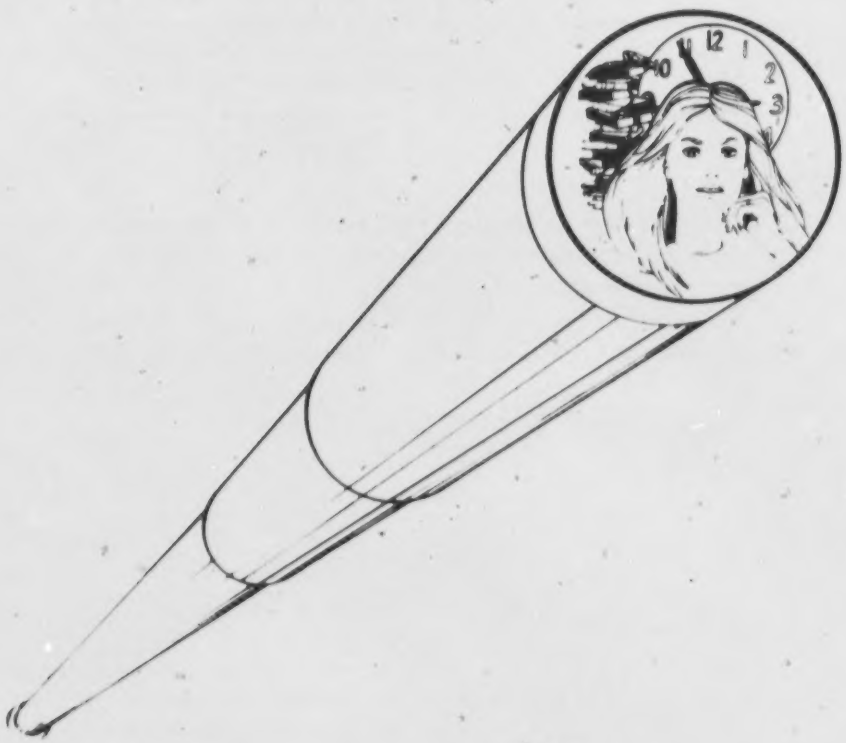
INTRODUCTION

This unit will help you plan and conduct a search for means of improvement. It is organized in two major sections. The first deals with planning activities which must take place before beginning the search. Those activities include:

1. determining the boundaries of the search,
2. specifying the kinds of information to be collected in the search,
3. developing a report form for recording the information collected, and
4. selecting a search vocabulary and sources of information to be employed in conducting the search.

The second presents guidelines for conducting the search. The guidelines include:

1. a description of search tasks and
2. a search progress checklist to help you prepare for and assess the completion of each task.



DETERMINING SEARCH BOUNDARIES

Your first step is to determine the boundaries of your search. This unit is designed to accommodate a search for means of improvement related to a **single** improvement requirement or to a **set of closely related requirements** for which the **same** means of improvement has been selected.

EXAMPLE

PRIORITY	MEANS OF IMPROVEMENT	IMPROVEMENT REQUIREMENT(S)
1	Student Learning Materials	Content should be organized in terms of consumer problems experienced by students in grades 4-6 (e.g., figuring discounts, computing sales taxes, comparative pricing of grocery items). Learning materials should be available in audiovisual as well as printed form to accommodate students with poor reading skills.
2	Administrative and Staff Development	Teachers in grades 4-6 should develop specific techniques for identifying changing student interests and motivation.

Review the Information Sheet completed at the end of Unit 2 (Information Sheet #5, page 2-69). If your improvement requirements have been ranked in order of priority, begin with the improvement requirement(s) demanding a search with the highest priority ranking(s). If your improvement requirements have been rated in order of importance, begin with the improvement requirement(s) demanding a search with the highest importance rating(s).

Stop now and review the example on page 3-3. Then determine the boundaries of your search. Use Information Sheet #1, page 3-5, to describe the improvement requirements which will guide your search for means of improvement.

EXAMPLE

SEARCH BOUNDARIES

MEANS OF IMPROVEMENT:	Student Learning Materials
IMPROVEMENT REQUIREMENT(S):	Content should be organized in terms of consumer problems experienced by students in grades 4-6 (e.g., figuring discounts, computing sales taxes, comparative pricing of grocery items). Learning materials should be available in audiovisual as well as printed form to accommodate students with poor reading skills.
OPPORTUNITIES:	Funds for purchase of additional materials are available.
CONSTRAINTS:	Such materials may be difficult to locate.
PREFERENCES:	Content should be presented in order of increasingly complex consumer analysis strategies.

INFORMATION SHEET #1

SEARCH BOUNDARIES

Directions: Set boundaries for your search by defining (1) the means of improvement, (2) the specific improvement requirement(s) for which the means of improvement has been selected, (3) any related opportunities and constraints, and (4) any related preferences (i.e., elements which are highly desirable, but not absolutely required for improvement).

MEANS OF IMPROVEMENT:

IMPROVEMENT REQUIREMENT(S):

OPPORTUNITIES:

CONSTRAINTS:

PREFERENCES:

SPECIFYING KINDS OF INFORMATION TO BE COLLECTED

In general, there are two kinds of information to be collected: descriptive and comparative. **Descriptive information** includes general information about the author and/or contact person as well as other facts of publication or availability which will help you locate a particular means of improvement. You should collect descriptive information for each means of improvement. Descriptive information should include the following items:

1. Full title or name of the means of improvement
2. Date of development
3. Developer(s) and location
4. Contact person, telephone number, and address
5. Distributor and location
6. Availability
7. Cost
8. Brief abstract (describing target population, content, methodology, etc.)
9. Other (You specify)

Comparative information includes specific information related to your improvement requirements which will help you compare one means of improvement with another. The comparative information to be collected can include items related to the four major topics described below:

1. **Expected Outcomes and Results** – User performance and other results (positive and negative) evident from informal and formal evaluation.
2. **Approach** – The essential methods employed.
3. **Resource Requirements** – The kinds of human and material resources involved in adoption and implementation.
4. **Implementation Setting** – The general context in which implementation has taken place or which would be suitable or favorable for implementation.

Stop now and specify the comparative information you want to collect by working through the checklist on pages 3-8 to 3-11 as a group. First check major topics of interest and then check the specific items of comparative information which should be reported in your search. There is also space for you to specify additional topics or items.

COMPARATIVE INFORMATION

A. EXPECTED OUTCOMES AND/OR RESULTS	EXPLANATORY NOTES
☐ INFORMAL EVALUATION DATA	
____ Extent of Adoption	No. of Schools, No. of Students Involved in Adoption (Age-Grade Levels, Location, Socio-Economic Characteristics), Length of Time in Use
____ Credibility of Developers	Reputation, Expertise in Area, etc.
____ Feedback from Users	User Reports, Impressions, Opinions
____ Recommendations of Consultant/In-District Experts/Professional Associates	
____ Other (Specify)	
☐ FORMAL EVALUATION DATA	
____ User Populations	Number, Size, Location, Socio-Economic Description, Geographic Distribution
____ Evaluation Design	Outcomes Measured, Measures Employed, Control Groups, Study Conducted by Whom and When
____ Evaluation Findings	
____ User Performance Results (Expected)	Cognitive, Affective; Immediate, Sustained over Time
____ User Performance Results (Unexpected)	Cognitive, Affective; Immediate, Sustained over Time
____ Other Findings	Costs, Staffing Requirements, Flexible Adaptations, Effects on Populations Other than Users (Administrators, Teachers, Students, Parents, Community Members, etc.)
☐ OTHER (Specify)	

COMPARATIVE INFORMATION

B. APPROACH	EXPLANATORY NOTES
☐ GENERAL RATIONALE	
____ Goals	Psychological or Educational Research Base, Empirical Base, Learning Theory
____ Basic Assumptions	
☐ CONTENT	
____ Type of Content	Experiences, Facts, Concepts, Values Emphasized
____ Organizing Principles	
____ Scope	
____ Sequence	
☐ SPECIFIC STRATEGIES	
____ Activities	
____ Roles and Interactions	Administrator, Teacher, Student, Paraprofessional, etc.
____ Materials and Media Employed	Workbook, Manual, Guide; Game, Kit; Film, Filmstrip, Slides; Record, Tape, Cassette; Laboratory Equipment; Computer Software
____ Provisions for Assessment and and Evaluation	
☐ RECOMMENDED USAGE	
____ Specific Objectives	
____ User Population Characteristics	Prerequisite Knowledge or Skills, Age/Grade/Educational Level, Socio-Economic Status, etc.
☐ OTHER (Specify)	

COMPARATIVE INFORMATION

C. RESOURCE REQUIREMENTS	EXPLANATORY NOTES
☐ COSTS	
____ Basic Materials	Initial; Continuing; Consumable, Replacement Costs
____ Supplementary Materials	
____ Orientation or Training	
____ Consultant Support	
____ Equipment	Type; Initial, Replacement Costs
____ Supplies	
____ Data Processing	
☐ STAFF	
____ Number of Personnel	
____ Type of Personnel	Education, Experience, Interpersonal Capabilities and Competencies
____ Specialized Knowledge or Skill Requirements	
____ Training Requirements	Materials, Time, Organization, Methodology, Availability, Effectiveness, Cost
☐ TIME	
____ Preparation or Lead Time	
____ Implementation or Installation Time	Frequency and/or Duration, Flexibility
____ Instructional Time	Frequency and/or Duration, Flexibility
☐ SPACE	
____ Facilities	Spatial Requirements, Functional Requirements, Necessary Facilities Modification or Construction
____ Storage	
☐ OTHER (Specify)	

COMPARATIVE INFORMATION

D. IMPLEMENTATION SETTING	EXPLANATORY NOTES
☐ CONTEXT	
____ Community	Social, Economic, Political Influences, Attitudes
____ Student	Student Characteristics, Attitudes
____ Teacher	Teacher Characteristics, Attitudes
____ Administrators	Decision-Making Climate, Administrator Attitudes
____ Influential Group	Degree of Support
____ Organizational Arrangements	Administrator, Student, Staff
____ Prior Experience with Curriculum Modification	
____ Other (Specify)	
☐ FLEXIBILITY AND EASE OF ADOPTION	
____ Compatibility with Present Practice	
____ Provisions for Assessment of Implementation Progress	
____ Possibility of Partial Adoption	
____ Possibility of Modification	
____ Other (Specify)	
☐ PROVISIONS FOR ORIENTATION	
____ Literature Available	
____ Demonstration/Visitation Sites	
____ Consultant Services Available	
____ Training Opportunities	
☐ OTHER (Specify)	

INFORMATION SHEET #2

KINDS OF INFORMATION TO BE COLLECTED

Directions: Specify the kinds of information you want to collect in your search. Topics for general descriptive information are already outlined for your convenience. If there is any other descriptive information you want to collect, please add it now. You should also enter any comparative information topics or items you have checked on pages 3-8 to 3-11 under Section II. The topics and/or items should be arranged in logical order.

I. **Descriptive Information**

- A. Full Title of the Means of Improvement
- B. Date of Development
- C. Developer(s) and Location
- D. Contact Person, Telephone Number, and Address
- E. Distributor and Location
- F. Availability
- G. Cost
- H. Brief Abstract
- I. Other (You specify)

II. **Comparative Information** *(Enter topics and items checked on pages 3-8 to 3-11).*

DEVELOPING THE SEARCH REPORT FORM

You know the boundaries for your search and have just specified the kinds of information you want to collect in your search. Your next step will be to collect specific information about possible means of improvement from a variety of sources. It is extremely important that you decide in advance exactly what kinds of information are to be collected. It is also very important that the information collected be organized so that it can be reported in a systematic and useful way. This section is designed to help you (1) identify the kinds of information to be collected in your search, and (2) design a standard form for reporting that information.

DESIGN OF THE REPORT FORM

Now that you have specified the kinds of information you want to collect in your search, you are ready to design the report form. Your report form will contain two major sections of information: (1) a section for general **descriptive** information, and (2) a section for **comparative** information.

Designing the report form before you conduct your search will save much time and trouble in the long run. A well-designed report form allows you to record the information collected in an organized way. It also helps standardize to some extent the kinds of information collected. In this section you will decide how to format and organize your search report form.

Format

There are a number of formats suitable for presenting such information. Any combination of the following formats can be used: (1) completion blank, (2) outline, (3) narrative abstract, (4) tabular (table), and/or (5) checklist. Feel free to vary the format of your report form to accommodate the information to be collected.

Organization

Your report form should also be organized to simplify the reporting of information collected. Careful attention to the following elements is recommended:

1. Develop some kind of code to identify the means of improvement being described (e.g., a numbering system).
2. Clearly demarcate each major section of information.
3. Include carefully thought-out directions for completing the form.
4. Provide explanatory notes or examples which indicate the kind and quality of information desired for any items which may be unclear, complicated, etc.

You will find that your initial report form may require modification to be practical in an actual search situation. It is wise to schedule one or several staff sessions to try out the report form in advance. This will help pinpoint and remedy possible problems of format or organization. It will also provide any search staff who have not been immediately involved in designing the form with practice in its use. A "working" copy of your report form should be used to collect information about each means of improvement; a final copy, to report that information.

Turn now to the next page for an example of a typical report form illustrating the format and organizational considerations just discussed.

EXAMPLE

SEARCH REPORT FORM

Program No._____

I. DESCRIPTIVE INFORMATION

(Directions: Complete all blanks below.)

Name of Program_____

Distributor_____

Developer (Originator of Program)_____

Cost (Start-Up)_____

II. COMPARATIVE INFORMATION

A. Evidence of Acceptability *(Directions: Provide evidence that the program satisfies improvement requirements.)*

1. Means of Improvement (Student Learning Materials):

2. Improvement Requirements:
   a. Content organized in terms of consumer problems experienced by students in grades 4-6.

   b. Learning materials available in audiovisual as well as printed form.

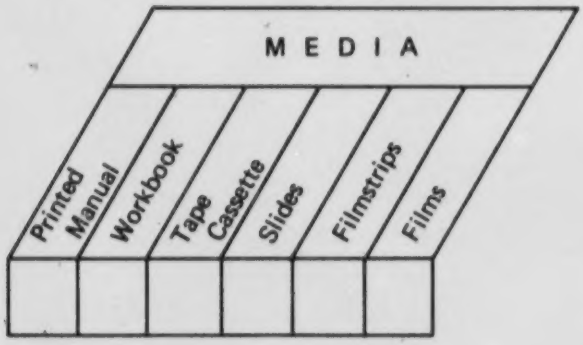
EXAMPLE

SEARCH REPORT FORM (Continued)

B. Evaluation Results *(Directions: Summarize evaluation findings on user performance in the space provided and then check the types of informal evaluation data available.)*

Formal Evaluation Data	Informal Evaluation data
	___ Extent of Adoption *(Describe)* ___ Credibility of Developers *(Describe)*

C. Approach *(Directions: Specify the media used in the program by checking the appropriate box(es) in the table below.)*



INFORMATION SHEET #3

SEARCH REPORT FORM

Directions: Type or attach a copy of the report form to be used in your search. Be certain to include all topics and important items listed on Information Sheet #2, page 3-13.

SELECTING SEARCH TOOLS

In this section, two important tools for conducting a search are discussed: (1) the search vocabulary, and (2) search sources. The search vocabulary is the vocabulary you use to locate means of improvement. Search sources are the sources of information you consult in order to identify those means of improvement. Each of these tools are discussed in detail in this section.

SEARCH VOCABULARY

At the beginning of this unit, you determined the boundaries of your search. You may know, for example, that you want to locate a program which will improve elementary teacher skills in identifying the reading skill deficiencies of individual students. If you search for programs only under the heading of **teacher training**, you might very well miss many other alternatives listed under other headings such as **student assessment, diagnostic training, performance appraisal**, etc. A comprehensive but selective vocabulary for locating means of improvement is obviously very important. Too narrow a vocabulary unnecessarily restricts your search and limits the means of improvement you are able to locate. Too broad a vocabulary, on the other hand, can result in the identification of too many means of improvement, only a few of which are genuinely appropriate to your improvement requirements.

References for Developing a Search Vocabulary

There are a number of indices to journals and newsletters and general reference works such as dictionaries, handbooks, and encyclopedias available to help you develop your search vocabulary. Several worth consulting are discussed below:

DICTIONARIES

Thesaurus of ERIC Descriptors. 4th ed. New York: CCM Information, 1972, 330 pp.

Dictionary of Education. Carter V. Good, ed. 3rd ed. New York: McGraw-Hill, 1973, 800 pp.

Barhydt, Gordon C., and Charles T. Schmidt. **Information Retrieval Thesaurus of Education Terms.** Press of Case Western Reserve University, 1968, 133 pp.

HANDBOOKS AND ENCYCLOPEDIAS

Encyclopedia of Education. New York: MacMillan Co., 1971, 10 vols.

Handbook of Research on Teaching. Robert M. W. Travers, ed. Chicago: Rand McNally, 1973, 1400 pp.

INDICES AND ABSTRACTS

Current Index to Journals in Education. [A monthly index to periodical literature in the field of education covering articles from over 300 education and education-oriented journals]

Research in Education. [A monthly abstract journal announcing recently completed research and research-related reports in the field of education prepared by the Educational Resources Information Center (ERIC)]

EXAMPLE

SEARCH VOCABULARY

MEANS OF IMPROVEMENT:	**Student Learning Materials**
	Curriculum, Instructional Materials, Curriculum Programs, Educational Programs, Educational Materials, Instructional Media, Multimedia Materials
IMPROVEMENT REQUIREMENTS:	Content should be organized in terms of consumer problems experienced by students in grades 4-6.
	Consumer Education, Consumer Economics, Consumer Science, Family Life Education, Home Economics, Money Management, Purchasing, Family Economics, Home Management, Merchandising, Retailing, Business Education
	Learning materials should be available in audiovisual as well as printed form to accommodate students with poor reading skills.
	Audiovisual Materials, Audiovisual Media, Visual Materials, Films, Instructional Films, Instructional Aids, Audiovisual Instruction, Audiotapes/Tape Recordings, Educational Television Films, Closed Circuit Television, Multimedia Materials, Instructional Media, Multimedia Instruction, Single Concept Films
PREFERENCE:	Content should be presented in order of increasingly complex consumer analysis strategies.
	Spiral Curriculum, Thinking Skills, Higher Order Cognitive Skills, Problem-Solving Strategies, Critical Thinking Processes

INFORMATION SHEET #4

SEARCH VOCABULARY

Directions: Develop a search vocabulary which will help you locate appropriate means of improvement. You can consult the references suggested on the previous page for assistance.

SEARCH SOURCES

There are many sources of information which can be used in your search. Some of the more useful sources are discussed in this section. You will want to choose sources of information which are (1) most likely to supply the information you want to collect, and (2) most practical in terms of any resource limitations affecting your search. The following pages (3-30 to 3-46) contain charts which outline the relative advantages and disadvantages of many different types of sources for collecting information. The charts also suggest whether a particular type of source would be an excellent, good, or acceptable choice in terms of specific resource limitations, including limited time, staff expertise, number of staff, funds, and/or poor location.

Turn to the search sources outlined on pages 3-30 to 3-46. When you have finished examining the charts, turn to page 3-51 and select the type(s) of sources to be used in your search. If you want to review an example dealing with the selection of search sources first, turn to page 3-47.

CHART OF SEARCH SOURCES

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
ABSTRACTING SERVICES	*EDUCATIONAL ADMINISTRATION ABSTRACTS* *An abstract journal listing articles on educational administration by subject.*	Concise summary overview of contents of journals, conferences, reports, etc. Help user minimize time spent sorting relevant and irrelevant information. Generally available.	Information is at least twice-removed from original sources, with possibility of ambiguity or distortion. Secondary sources of information requiring additional time to investigate primary sources referenced.	○ △	△	△	●	○
BIBLIOGRAPHIES Annotated	*PERFORMANCE-BASED TEACHER EDUCATION: ANNOTATED BIBLIOGRAPHY* *A bibliography on performance-based teacher education initiated by the American Association for Colleges of Teacher Educa-*	Can be general or specific, containing descriptive or evaluative references. Valuable time-savers for locating information if selective in terms of subject covered.	Recency an important consideration. Not always available in subject area of interest. Secondary sources requiring additional time to locate and investigate primary source. referenced.	○ △	○	△	●	○

CHART OF SEARCH SOURCES (Continued)

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
BIBLIOGRAPHIES Annotated (Continued)	*tion in collaboration with the ERIC Clearinghouse on Teacher Education.*							
BIBLIOGRAPHIES Unannotated	*COMPETENCY-BASED EDUCATION: THE STATE OF THE SCENE* *A valuable list of educational institutions with total, alternative or parallel teacher programs, summary of progress on CBTE in the states, lists of CBE centers and teacher centers, significant publications on the subject as well as a glossary of terms used in*	Consist of simple citations, including title, author, facts of publication. Generally available.	May be too general to be useful. Recency an important consideration. Secondary sources of information requiring additional time to locate and investigate primary sources referenced.	△	△	△	●	○

CHART OF SEARCH SOURCES (Continued)

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
BIBLIOGRAPHIES Unannotated (Continued)	*discussing this approach. Other available CBE publications are also listed.*							
CONFERENCES	***ASSOCIATION FOR SUPERVISION AND CURRICULUM DEVELOPMENT – ANNUAL CONFERENCE*** *A national conference focusing on the improvement of curriculum and methods of teaching and supervision.*	Afford opportunities for direct interaction with others sharing similar interests, experiences, and possessing related information. Personal contacts can be established which may prove helpful in the future. Good sources of informal opinion about existing means of improvement.	Often held during "school" time. May be held at a remote location. Generally allow little time for in-depth discussion with key participants.	○ △	○ △	●	○ △	○ △

CHART OF SEARCH SOURCES (Continued)

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
CONSULTANTS	*EDUCATIONAL DEVELOPMENT CENTER, INC.* *A private, non-profit corporation which sponsors a consulting service for public schools interested in developing open education programs.*	Supplement staff skills and knowledge. Can furnish expertise tailored to individual needs of district. Dialogue to clarify search purposes is possible. May have knowledge of or access to a variety of means of improvement and other sources of information. Can provide professional opinion to aid selection process.	May not be available when needed. May require considerable orientation to the district's situation. Can be expensive.	○ △	●	●	△	●
DEMONSTRATION SITES	*IPI (INDIVIDUALLY PRESCRIBED INSTRUCTION) DEMONSTRATION SCHOOLS* *A network of schools with ongoing IPI pro-*	Allow for immediate personal observation of a program in action. Permit discussion of program with practitioners experienced in its implementation.	Sites may not be located within reasonable proximity. Travel costs for personnel who ought to visit site may be prohibitive.	● ○	● ○	● ○	○ △	○ △

CHART OF SEARCH SOURCES (Continued)

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
DEMONSTRATION SITES (Continued)	*grams which may be visited for purposes of observation.*	Can provide practical answers to practical questions about introduction, implementation, costs, etc. of program.						
DIRECTORIES	THE ENCYCLOPEDIA OF ASSOCIATIONS *A standard guide to national associations of the United States, their activities and publications.*	Promising leads to subject experts and consultants, publishers, distributors, associations, foundations, exemplary schools.	Very rapidly outdated.	○	○	●	●	●
			Usefulness varies according to amount and quality of information.					
		Some directories contain only descriptive information; others include evaluative comments.	Some indexed only by name, an impediment to most users.	△		○	○	○
		Generally available.	May not be available in area of interest.					

CHART OF SEARCH SOURCES (Continued)

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
HANDBOOKS	*SECOND HANDBOOK OF RESEARCH ON TEACHING* *A major handbook with comprehensive coverage of research and innovation in teaching.*	Concise general coverage with suggestions for further investigation. Ordinarily descriptive rather than evaluative. Generally available.	Rapidly outdated. Not helpful if search has already been fairly specifically defined.	△	○	○	● ○	● ○
INDEXING SERVICES	*RESEARCH IN EDUCATION* *A monthly abstract journal which contains resumes of selected research reports and descriptions of outstanding programs from ERIC Clearinghouses.*	Access systems for identifying content of journals, conferences, reports potentially relevant to district's needs. More effective for a specifically defined search. Generally available.	Sources may not cover literature relevant to search question. Usefulness varies according to thoroughness of particular indexing system, e.g., cross-referencing, synonymous terms, rotated descriptor display, etc. Include only general classifications such as subject-heading, title, author	△	△	△	○	○ △

CHART OF SEARCH SOURCES (Continued)

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
INDEXING SERVICES (Continued)			which are not very helpful in determining relevance of content of item indexed. Possibility that many irrelevant items will have to be sorted. Secondary sources of information requiring additional time to find primary sources referenced.					
INFORMATION CLEARING-HOUSES	*ERIC (EDUCATIONAL RESOURCES INFORMATION CENTER)* *A nationally sponsored information system for education composed of clearinghouses with areas of special interest for which they*	Theoretically have potential to furnish comprehensive and relevant information on general or specific topics and/or to provide direction to other helpful sources of information. May provide back-up services such as document reproduction.	The majority tend to provide prepackaged information, servicing requests on a general rather than an individual basis. Some, however, will tailor response to individual needs.	○	○	○	●	○

CHART OF SEARCH SOURCES (Continued)

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
INFORMATION CLEARING-HOUSES (Continued)	*monitor, acquire, evaluate, abstract, and list literature for inclusion in ERIC publications.*	In some cases, actual materials associated with programs may be reproduced in inexpensive form and obtainable through clearing-house. Where local information centers exist, actual materials may be "on file." Generally accessible.	Format in which information is available may be awkward or cumbersome to use (e.g., microfiche). Response time may be slow.	△				
INFORMATION SEARCH SERVICES	*SMIRS (SCHOOL MANAGEMENT INFORMATION RETRIEVAL SERVICE)* *An ERIC Clearinghouse on Educational Management which offers manual and computer search services.*	Specialized assistance in locating desired information, whether of a general or specific nature. Services can be tailored to individual user's needs. Compensate for lack of expertise in conducting a search. Generally accessible.	Particular search service may not cover a useful data base. Often expensive. May be time-consuming. Information obtained is often only as good as the search vocabulary employed.	○ △	●	●	○ △	● ○

CHART OF SEARCH SOURCES (Continued)

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
INFORMATION SEARCH SERVICES (Continued)			May not provide sufficient opportunities for dialogue about district's specific information needs.					
JOURNALS Technical	*AEDS (ASSOCIATION FOR EDUCATIONAL DATA SYSTEMS) MONITOR* *A monthly journal on computer-assisted instruction for the technical specialist.*	Include professional papers and reports on current research developments and experiments. Often provide detailed information about rationales, settings, hypotheses, methodologies, and results. Especially beneficial when a single issue contains related articles on the same theme.	Some journals are poorly indexed, making the search difficult. Sometimes the content is too technical to benefit school personnel. Articles may deal with highly specific issues, so that considerable time may be spent before sufficient information is obtained. May not be generally available.	○ △	○ △	△	●	○ △

CHART OF SEARCH SOURCES (Continued)

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
JOURNALS Non-Technical	*PHI DELTA KAPPAN* *A journal published by a major professional organization which features articles on current developments in education and educational research.*	Contain news and/or advertisements of current technologies or products, and announcements of conferences. Generally contain some articles or abstracts of interest. Articles can be descriptive or evaluative. Good for keeping abreast of recent developments. Generally available.	Some journals are poorly indexed, making the search difficult. Articles of interest are often scattered, so that considerable time can be expended without obtaining desired information. Information may be too general or superficial to be useful.	○ △	△	△	●	● ○
NEWSLETTERS	*THE INDIVIDUALIZED LEARNING LETTER* *A frequent newsletter containing brief articles on individualized learning, implementation of individualized learning tech-*	Contain news or capsule summaries of current developments in both general and special areas of education, announcements of conferences, etc. Ordinarily inexpensive. Generally available.	Back issues may be hard to obtain. Information content may be too general or even superficial to be helpful.	○ △	○ △	△	●	● ○

CHART OF SEARCH SOURCES (Continued)

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
NEWSLETTERS (Continued)	*niques, announcements of conferences, etc.*							
ORGANIZATIONS Governmental	*U.S. OFFICE OF EDUCATION, DIVISION OF EDUCATIONAL SYSTEM DEVELOPMENT* *A division of the Office of Education which administers and funds teacher education programs in a number of program areas, including bilingual education, education of the handicapped, urban-rural, career, etc.*	Direct source of information on programs they sponsor. May provide reference or referral to other sources of information in the area under investigation. Can be extremely helpful if search needs are very clearly defined.	May not be directly involved in areas of interest. Tend to provide fairly general assistance through printed documents. Turnaround time on requests may be slow.	○ △	○ △	○ △	●	○ ○
ORGANIZATIONS Local	*LOCAL SCHOOL DISTRICT*	Provide information about learning materials and training products.	Programs and consultant services range in quality.	●	●	●	●	●

CHART OF SEARCH SOURCES (Continued)

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
ORGANIZATIONS Local (Continued)		May sponsor workshops or offer consultant services. Readily accessible. Very inexpensive.	Limited resources may be overtaxed by local demands.	○	○			
ORGANIZATIONS Professional	*AMERICAN ASSOCIATION OF SCHOOL ADMINISTRATORS* *A major professional organization which issues publications and provides a variety of orientation and training opportunities, relevant to the needs and concerns of school administrators.*	Good sources for practical in-service training programs in some specialized areas. Sponsor conferences and issue publications which often furnish good leads. Relatively inexpensive.	Areas of interest will be limited to professional concerns. Professional concerns may result in somewhat biassed reporting of information.	● ○	● ○	○	●	● ○
ORGANIZATIONS Publishers	*VIMCET ASSOCIATES* *A producer of filmstrip – tape and audio tape programs on educational technolo-*	Quick and usually free sources of information about commercially available materials or products.	The reviews or evaluation data available from publishers tend to present a favorable view of	●	△	●	●	○

CHART OF SEARCH SOURCES (Continued)

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
ORGANIZATIONS Publishers (Continued)	*gy for in-service use.*	Some publishers have consultants and regional representatives to assist the client in implementing the programs.	the materials and products they publish.					
ORGANIZATIONS Research and Development	*RESEARCH FOR BETTER SCHOOLS* *An educational research and development laboratory which develops curricula for individualizing and humanizing instruction as well as planning, management, and evaluation training for both teachers and administrators.*	Primary developers of innovative learning materials and training products. Can usually supply evaluation data. Sometimes contract to provide workshops or consultant services. Costs involved are usually relatively low, since the laboratories are nonprofit organizations.	Some R&D materials and products require technical support for proper implementation.	○	●	○	●	○

CHART OF SEARCH SOURCES (Continued)

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
ORGANIZATIONS Special Focus	***EDUCATIONAL TESTING SERVICE*** *A major organization in the area of testing, measurement, and evaluation.*	Very valuable sources of information about programs and services related to a specific area of interest.	Not the most promising sources to consult when time or money are severely limited.	●	●	○	●	○
		When the very specialized expertise they offer is urgently needed, these special focus organizations can often tailor a program to a particular local need.	Not always oriented toward education and educators.		○			
ORGANIZATIONS State or Regional	***STATE DEPARTMENT OF EDUCATION or REGIONAL SERVICE UNIT***	Can be good proximate source of information, programs, services.	Frequently overtaxed and unable to respond to individual needs.	○	○	○	●	○
		Usually inexpensive. Often, no cost involved.	Quality of programs and services variable.	△				

CHART OF SEARCH SOURCES (Continued)

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
ORGANIZATIONS University-Based	*LEARNING RESEARCH AND DEVELOPMENT CENTER, UNIVERSITY OF PITTSBURGH* *A university-based center involved in basic and applied behavioral science research in education.*	Can be a rich source of information if active in a desired area of interest. Sometimes issue highly relevant publications and even provide consultative services.	Response may be too theoretical or technical for practical purposes. May not be prepared to deal with practitioner requests.	○ △	○ △	○	●	○
REPORTS	*EPIE (EDUCATIONAL PRODUCTS INFORMATION EXCHANGE) EDUCATIONAL PRODUCT REPORTS* *A series of consumer-oriented reports on educational products and equipment issued by the EPIE Institute.*	Useful when dealing with a well-defined area of interest. Can be either descriptive or evaluative. Contain very specific information about intended and actual results, characteristics of implementers, etc.	May be too technical for practical use. Frequently difficult to obtain. May not be available to general public.	△	○ △	○ △	●	△

CHART OF SEARCH SOURCES (Continued)

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
SOURCELISTS Evaluative	*CURRICULUM ADVISORY SERVICE QUARTERLY* *A subscription service which provides descriptions and evaluations of selected textbooks and supplementary materials.*	Valuable references which often contain evaluation and cost data. One of the most relevant and least time-consuming sources to use. Becoming more available.	Usually reflect the judgment and selection criteria of the compiler. Recency must be considered. Fewer sourcelists exist for training products than for curriculum materials.	●	●	●	●	●
SOURCELISTS Non-Evaluative	*ALERT: A SOURCEBOOK OF ELEMENTARY CURRICULA, PROGRAMS AND PROJECTS* *A select descriptive listing of elementary curriculum materials, projects, and training programs organized by subject discipline.*	Immediate guides to specific programs and materials. Exist in both comprehensive and selective form. Quickly and easily used. Direct user to current distributor or developer. Generally available.	Even if nonevaluative, certain assumptions have often influenced the content selected. Recency must be considered. Fewer sourcelists exist for training products than for curriculum materials.	○	○	●	●	●

CHART OF SEARCH SOURCES (Continued)

● EXCELLENT
○ GOOD
△ ACCEPTABLE

Type of Source	Example	Advantages	Disadvantages	Resource Limitations				
				Time	Staff Expertise	No. of Staff	Funds	Location
WORKSHOPS	*NATIONAL ACADEMY FOR SCHOOL EXECUTIVES – DIRECT SERVICE PROGRAMS* *NASE is a division of American Association of School Administrators which sponsors a variety of "direct service" programs including clinics, institutes, seminars, etc. for states, regional agencies, school districts.*	Promote awareness of practical means of improvement which may relate to needs. May offer opportunities for "hands on" experience with new programs and/or the development of skills for identifying and/or evaluating new programs. Encourage direct interaction and exchange with others sharing similar needs and undertaking similar changes in curriculum. Can be a source of consultants.	May be too general or impractical to be useful. May be located at too great a distance. May require too much time in a single block. May not be scheduled when needed.	● △	●	●	○ △	○ △

EXAMPLE

SELECTING SEARCH SOURCES

Information Needs – The improvement requirements are quite specific. The search should result in the identification of student learning materials having content organized in terms of practical consumer problems experienced by students in grades 4-6 and available in audiovisual as well as printed form. A wide variety of comparative information is to be collected, including (1) formal and informal evaluation findings, (2) detailed information on the content, strategies, and recommended usage of the materials, (3) information on cost, time, and equipment requirements, and (4) information on provisions for orientation to the materials.

Resource Limitations – The search must be completed in less than three months. Staff have had little experience in conducting a search. Available staff are limited in number to two teachers and a curriculum coordinator. Location is not a major problem.

TYPES OF SOURCES SELECTED	REASONS FOR SELECTION
1. ORGANIZATIONS Research and Development	Research and Development Organizations are primary developers of innovative student learning materials. They should therefore be particularly helpful in terms of providing detailed information about the content, strategies, and recommended usage of the materials they develop. They can usually supply evaluation data on the effectiveness of their materials, because their materials are often field tested. A good and sometimes excellent choice in terms of resource limitations (See chart, page 3-42).
2. SOURCELISTS Evaluative	Sourcelists frequently contain the kinds of information sought, particularly evaluation and cost data. The only drawback is that there may be few sourcelists dealing with consumer education materials. Sourcelists are among the least time-consuming search sources to use. A consistently excellent choice in terms of resource limitations (See chart, page 3-45).

EXAMPLE

SELECTING SEARCH SOURCES (Continued)

TYPES OF SOURCES SELECTED	REASONS FOR SELECTION
3. CONSULTANTS	Consultants can supplement staff knowledge and skills, tailoring their services to the individual needs of a school or district. They may have knowledge of or access to a variety of means of improvement and specialized sources of information. One drawback is that they can be expensive. An excellent to good choice in terms of resource limitations (See chart, page 3-33).
4. INFORMATION SEARCH SERVICES	Offer specialized assistance in locating desired information. Services can be tailored to individual user's needs. Compensate for lack of staff expertise in conducting a search. Search services can, however, be expensive and sometimes time-consuming. It is extremely important to determine in advance whether they cover a useful data base. Information search services are a generally excellent to good choice in terms of resource limitations (See chart, page 3-37).

INFORMATION SHEET #5

SEARCH SOURCES

Directions: Discuss the information you want to collect and any resource limitations affecting your search. Then use the charts on pages 3-30 to 3-46 to select appropriate sources of information for your search. List the type(s) of sources selected in the space provided below and cite your reasons for selecting those types.

CONDUCTING THE SEARCH

OVERVIEW OF THE TASKS

The preceding sections have helped you plan your search. This section discusses the main tasks involved in actually conducting a search:

(1) identifying specific sources of information,

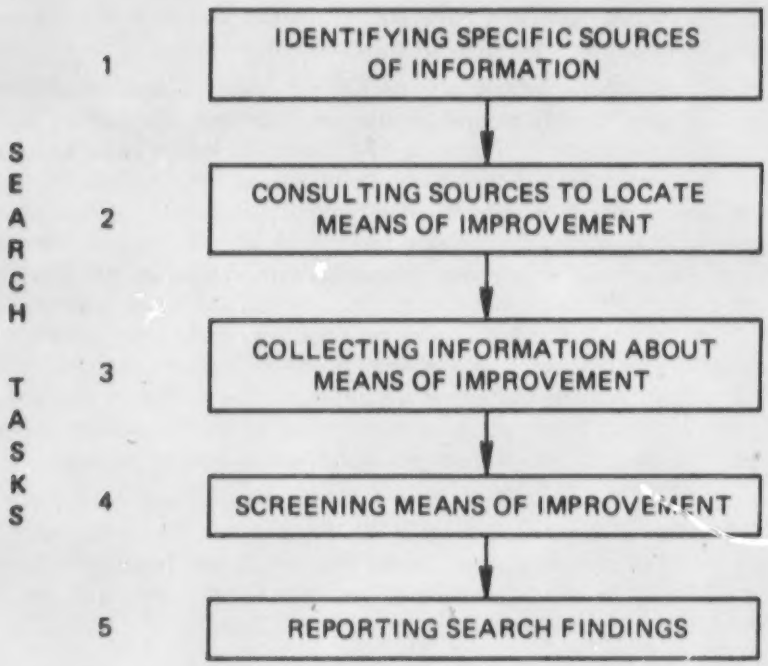
(2) using those sources to locate means of improvement,

(3) collecting information about means of improvement,

(4) screening out means of improvement which are not appropriate, and

(5) reporting the findings of your search.

Each of the five tasks is discussed in this section.



Task 1: Identifying Specific Sources of Information

In the last section, you selected the general types of information sources you would like to consult in your search. This task involves identifying specific sources of each type likely to lead you to appropriate means of improvement.

Suppose, for example, you have selected journals as one type of information source to be consulted in your search. How can you decide which specific journals might help you locate suitable means of improvement? The search vocabulary you have developed should alert you to specific sources of information which are promising.

You can begin by consulting reference books such as bibliographies or indices which contain listings of a wide range of specific sources of information. You can take advantage of the reference and referral services provided by most libraries and by specialized information centers. Or you can go directly to specialized publications (source collections) dealing solely with specific sources of information related to particular subjects, fields, or topics.

Curriculum and Instruction: A Guide to Alternatives is a source collection which has been compiled to help you identify specific sources of information.* Its contents are organized in three major sections: (1) Student Learning Materials, (2) Administrative and Staff Development, and (3) Resource Allocation. Within each section, you will find descriptions of specific sources of information you may want to consult. They are arranged according to type (e.g., professional association, journal, etc.). The second and third sections of the **Guide** also contain entries describing some specific means of improvement under the headings of "training products" and "methods" of resource allocation.

Two other source collections which are useful for locating specific sources of information are: (1) **A Guide to Educational Resources** (Stanford, California: Stanford Center for Research and Development in Teaching, 1974), and (2) **Information Sources and Services in Education** (Bloomington, Indiana: Phi Delta Kappa Foundation, 1973). The **Guide to Educational Resources** is an annotated bibliography which identifies standard sources of information for conducting preliminary searches. Each reference is described in terms of content, scope, and value as a reference tool. **Information Sources and Services** is a compact pamphlet (#16 in the Phi Delta Kappa Fast-Back Series) describing a generic set of strategies to be employed in conducting a library search. It includes brief guidelines and illustrations to assist the user in defining a search problem and in searching relevant information sources manually or with the aid of a computer. The pamphlet also describes exemplary national and regional information systems offering search services as well as selected reference works and periodicals relevant to a search in the field of education.

What if you are unable to locate specific information sources of the type(s) you have selected because (1) very few such sources exist or (2) the source collections investigated provide only a limited listing of specific sources. In the first case, other types of information sources should be consulted. In the second case, you should attempt to locate other collections which offer a more comprehensive listing of specific sources.

*Curriculum and Instruction: A Guide to Alternatives. Philadelphia: Research for Better Schools, Inc., 1976.

Task 2: Consulting Sources to Locate Means of Improvement

Once you have identified a reasonable number of specific sources of information, you should begin consulting those sources. A flexible search vocabulary will be your primary tool for locating means of improvement. Various sources often use different vocabularies to identify the same or similar means of improvement. Not every source consulted, of course, will lead to suitable means of improvement.

There are a variety of ways in which you can proceed. Depending upon the source, you can telephone, write a letter of request, undertake a literature search, contact in person, or subcontract with an outside agency to search for you.

Keep a record of each source which enables you to locate suitable means of improvement or which furnishes you with a lead. You can use one side of a file card to record information about the source and the reverse side for information about the means of improvement or leads suggested by the source.

What if you experience difficulty in accessing specific sources of information because (1) the sources are simply not available or (2) a particular way of proceeding (e.g., telephone call) is not effective? In the first case, you should attempt to identify related sources likely to yield the information you desire. In the second case, you should explore other ways of proceeding (e.g., personal contact). What if the sources consulted do not enable you to identify suitable means of improvement? You should consider the possibility that your improvement requirements might be too restrictive. You should also review your search vocabulary to determine whether it is too narrow or too broad. Dictionaries, thesauruses, and other reference books can be used to generate a more appropriate search vocabulary.

Task 3: Collecting Information About Means of Improvement

As you locate means of improvement, you will want to begin collecting descriptive and comparative information. Your "working" report form should be used to record all relevant information, whether it is collected from one or more than one source. The report form indicates the kind and quality of information which is to be collected. It also indicates how the information is to be recorded on the report form. Be certain to assign each means of improvement its own code number.

Establish a file for each means of improvement and include your working report form and other related materials in the file for easy reference and updating. Keep your files in an accessible place. A simple log of the contents of each file can be kept, with the file code number making rapid location possible.

What if you are unable to obtain sufficient information about a particular means of improvement because (1) your source(s) are deficient, (2) your way(s) of proceeding inhibit full use of the source(s), or (3) your search vocabulary does not elicit desired information from the source? In the first case, you should attempt to identify more adequate source(s) of information. In the second case, you should explore more effective ways of proceeding. In the third, you should refine or expand your search vocabulary.

What if you experience difficulty in using the standardized report form because (1) the report form was not designed to accommodate all of the information you have collected or (2) the kind and quality of information to be reported is unclear? In the first case, the report form should be modified to accommodate the information being collected. In the second case, clarifying statements which will help you identify appropriate information should be developed.

Task 4: Screening Means of Improvement

You can proceed to this task when you have successfully contacted a variety of sources and have collected basic information for one or more means of improvement. Screening means deciding whether or not a particular means of improvement satisfies your improvement requirements.

Screening can be performed by an individual or by a group. Some school systems prefer to use a screening "committee." Others prefer to rely on the individual searcher.

What if you find that you are unable to screen means of improvement because (1) you lack information, (2) the information you have is conflicting or ambiguous, or (3) your improvement requirements are not sufficiently discriminating? In the first case, you should attempt to identify additional sources which can provide you with the information you need for screening purposes. In the second case, you should spend time determining which information is accurate and/or securing more precise information. In the third, you should clarify and/or refine your improvement requirements until they are useful for screening means of improvement.

Task 5: Reporting Search Findings

The means of improvement found acceptable after screening are the ones to be considered for possible adoption or adaptation by your school system. Your final report for each acceptable means of improvement ought to include the general descriptive information and any comparative information which was specified at the beginning of your search. Any information which remains to be collected should be collected before you proceed with this task.

You should check the quality of all information to be included in your report. Resolve any contradictory statements by returning to your original source(s) of information and/or by consulting new source(s) of information. Use the supplementary materials in your files to clear up any vague or ambiguous statements. Delete any suggestion of personal opinion, whether it is your own or the unsubstantiated opinion of a particular source.

When you have completed a report form for each acceptable means of improvement, you may want to cite helpful supplementary materials contained in your files. Comments describing sources of information you found to be particularly valuable can also be added. If further information of a comparative nature is necessary at a later point in time when a selection decision has to be made, those sources will be useful.

ASSESSING SEARCH PROGRESS

The following pages contain brief checklists which will help you assess your progress in conducting the search. There is a checklist for each search task. Each checklist contains two types of questions: (1) preparation questions and (2) completion questions. The preparation questions will help you determine how ready you are to perform the task. The completion questions will help you determine how well you have performed the task. Use these questions to assess your own search progress.

Before beginning, you should consult with the planning coordinator to determine the specific procedures to be followed in conducting the search. Use the checklist(s) appropriate to the particular search task(s) you are to perform. When your responses to the preparation questions indicate that you are ready, proceed. Use the completion questions as a check on your progress toward task completion.

SEARCH PROGRESS CHECKLIST

TASK 1: IDENTIFYING SPECIFIC SOURCES OF INFORMATION

PREPARATION

____ 1. Have you decided how to identify specific sources of the type(s) which you are interested in locating (e.g., reference books, library referral services, etc.)?

____ 2. If you lack experience, will you have professional assistance with this task?

COMPLETION

____ 1. Have you located specific sources of information which are satisfactory in terms of type, number, and ease of use?

____ 2. Do those sources appear to be promising in terms of helping you locate appropriate means of improvement?

TASK 2: CONSULTING SOURCES TO LOCATE MEANS OF IMPROVEMENT

PREPARATION

____ 1. Have you decided which ways of proceeding are best suited to particular sources (e.g., telephone call or letter of request to professional organization)?

____ 2. Are you allowing yourself enough turnaround time if you have chosen ways of proceeding which are time-consuming?

____ 3. Have you developed a search vocabulary which is sufficiently flexible for locating appropriate means of improvement?

COMPLETION

____ 1. Were you successful in locating means of improvement (or leads to means of improvement) which seem compatible with your improvement requirements?

____ 2. Have you established a file of sources consulted for future reference?

____ 3. If the source has enabled you to locate one or more possible means of improvement, have you recorded that information on the reverse side of your file card?

SEARCH PROGRESS CHECKLIST (Continued)

TASK 3: COLLECTING INFORMATION ABOUT MEANS OF IMPROVEMENT

PREPARATION

____ 1. Do you have sufficient copies of the standardized report form to be used in collecting information?

____ 2. Are you clear about the kind and quality of information to be collected (e.g., explanatory notes or examples provided on the form, etc.)?

____ 3. Have you practiced working with the report form, following its directions, etc.?

COMPLETION

____ 1. Have you obtained sufficient descriptive and comparative information about each means of improvement under consideration in terms of both kind and quality?

____ 2. Have you resolved any contradictions or ambiguities found in the information you have collected?

____ 3. Have you established a file to contain the "working" report form and supplementary materials for each means of improvement?

TASK 4: SCREENING MEANS OF IMPROVEMENT

PREPARATION

____ 1. Have you closely reviewed your improvement requirements and the comparative information collected?

____ 2. Have you taken precautions to make sure that your bases for judgment are as objective as possible (e.g., seek further clarification of improvement requirements, check actual validity of information collected, compare your judgment with that of another professional, etc.)?

COMPLETION

____ 1. Are you satisfied that each means of improvement ruled "acceptable" does actually satisfy your improvement requirements?

____ 2. Have you taken steps to collect additional information where available information was discovered to be insufficient or inaccurate?

SEARCH PROGRESS CHECKLIST (Continued)

TASK 5: REPORTING SEARCH FINDINGS

PREPARATION

____ 1. Have you determined what (if any) information still remains to be collected for each acceptable means of improvement (e.g., comparative information)?

____ 2. Are there any final modifications to be made to the report form?

____ 3. If there are such revisions, is there additional information (kind and quality) to be collected as a result?

____ 4. Have you checked all information recorded on your "working" report form(s) for apparent contradictions, ambiguities, or possible bias?

COMPLETION

____ 1. Has a report form been completed for each acceptable means of improvement?

____ 2. Has all important information been recorded (descriptive, comparative)?

____ 3. Have helpful supplementary materials included in your files been cited or referenced on your report form (optional)?

Planning Coordinator's Manual

Developed by
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Research for Better Schools, Inc.
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COORDINATOR'S MANUAL

INTRODUCTION

This manual is designed to help you coordinate your school system's improvement effort. It shows you how to work with a planning group from your school system, using **Curriculum and Instruction: Planning Improvement** to decide how curriculum and instruction should be modified in order to meet existing student needs.

Too often, inadequate planning gives rise to problems which impede and weaken desired improvements. **Curriculum and Instruction: Planning Improvement** aims to avoid problems arising from:

- poor definition of student needs,
- vague requirements for improvement,
- premature and inappropriate selection of means of improvement,
- failure to involve those who will be asked to support or implement new programs and practices.

Specifically, it shows the planning group how to:

- Develop a clear and substantial statement of student needs,
- Establish a comprehensive set of requirements for the improvement of curriculum and instruction,
- Search for and locate means of improvement which match their requirements,
- Communicate with various audiences in the school system about their plans and findings.

CURRICULUM AND INSTRUCTION

You should take time to become familiar with Curriculum and Instruction: Planning Improvement. It contains three instructional units, each dealing with an important planning task:

UNIT	UNIT TITLE	PLANNING TASK
1	Developing the Need Definition	Draft an organized description of desired and current student performance.
2	Establishing Improvement Requirements	Specify required improvements in curriculum and/or instruction.
3	Planning and Conducting A Search	Decide how to locate means of improving curriculum and instruction.

Each unit contains explanatory text and examples to facilitate completion of the planning task for that unit. As the planning group works through the unit, they apply the contents to their own situation.

Curriculum and Instruction: Planning Improvement is accompanied by a supplementary sourcebook titled A Guide to Alternatives. The sourcebook can be consulted in conjunction with the search for means of improvement (Unit 3).

COORDINATOR'S ROLE

As coordinator, you are responsible for organizing and conducting all group planning activities. The group depends on you to prepare advance summaries of information about student performance and to identify available resources for planning. You should introduce them to the purpose of each unit, provide a task overview, direct their progress through unit planning activities, and foster group interaction. As coordinator, you also must take the initiative when additional information or specialized expertise is required by the planning group. **Curriculum and Instruction: Planning Improvement** is designed to promote group discussion and negotiation of planning decisions. Your role is that of a facilitator, guiding the group in the sense of keeping them on target and on schedule, but never exerting arbitrary authority over their decision-making. This does not mean that as an individual member of the planning group, you cannot be an active participant in group discussions.

This manual will help prepare you for your role as coordinator. It is organized in three sections. The first section deals with administrative decisions which must be made prior to beginning the planning effort. The second section contains specific procedures and suggestions for organizing and managing activities related to each planning task. The third section presents guidelines for communicating with various audiences in your school system about the planning effort. Before you work with this manual, however, you should take the time to carefully read through **Curriculum and Instruction: Planning Improvement** and to skim the contents of the **Guide to Alternatives**. Thorough understanding of the units in **Planning Improvement** is critical for you as coordinator.

PRELIMINARY
ADMINISTRATIVE DECISIONS

PRELIMINARY ADMINISTRATIVE DECISIONS

This section discusses preliminary administrative decisions to be made before initiating a planning effort in your school system: (1) selecting a student need situation, (2) selecting planning group members, (3) developing a work schedule, (4) preparing a resource estimate for the planning effort, (5) identifying other individuals and groups from the school system who should be involved in the planning effort, and (6) preparing a preliminary need definition.

A student need situation must be selected in advance so that there are clear boundaries for the planning effort. The planning group can then concentrate on the development of a refined need definition which will provide a sound foundation for all subsequent improvement decisions.

Members of the planning group must be carefully selected. Adequate representation of all groups affected by the need situation is an important criterion. The ability to contribute relevant information; special expertise in assessment, evaluation, curriculum and instructional design; and familiarity with school system financial and other resources are additional criteria which should influence the selection of members of the planning group.

A work schedule must be developed to insure that the recommendations of the planning group are formulated in time to impact decisions about improving present curriculum and/or instructional practice. The work schedule has to accommodate the school calendar, budget submission, funding and proposal application deadlines, administrator and teacher availability, and many other factors which affect when improvement decisions are made. The work schedule also has to provide sufficient "lead time" for gathering and analyzing information about student performance, current curriculum and instructional practice, desirable alternatives to current practice, practical constraints, etc. from a wide variety of sources.

An estimate of the resources which will be required for completion of the planning effort is essential. The scope and duration of the planning effort will be largely determined by the availability of resources required and the willingness of school system administrators to commit those resources to planning. You will want to secure such commitments before you begin working with this package, and a carefully developed resource estimate will help you communicate with administrators about your requirements.

Provisions should be made for involving other individuals and groups from the school system in the planning effort. Support for planned improvements in curriculum and instruction can be best secured by providing specific opportunities for participation throughout the planning process.

Once the planning group has been formed, it is critical that a preliminary need definition be prepared. The coordinator should clearly define the types of student performance involved in the student need situation (e.g., basic skills, etc.) for the planning group. Then supportive data on current student performance should be organized to provide all members of the group with a common information base for planning. It is strongly recommended that the coordinator have some members of the planning group assist with the organization of data on current student performance.

SELECTING THE NEED SITUATION

The selection of the student need situation which will be the focus of your school system's planning effort is not a decision which can be made in isolation. Key administrators, representative teachers, curriculum and evaluation specialists should be consulted. Additional information should be collected from a variety of sources – other teachers, students, parents, community members. Finally, a set of explicit criteria should be formulated and used to determine which student need situation is selected. The size of the gap between desired and current student performance is frequently a criterion, with the "larger" need considered to be more important. The number of students involved is another criterion, with the need affecting the greatest number of students considered to be more important. The following are additional criteria worth consideration:

1. Pressure being exerted to improve student performance.
2. The type of students affected by the need.
3. The likelihood of improving student performance.
4. Legislative mandates or board directives to improve student performance.
5. Additional benefits to be realized by improving student performance.
6. The feasibility of improving student performance.
7. The adverse consequences of not acting to improve student performance.

You may also want to consider how the student need situation selected can influence your planning and the use of this package. A set of student needs which are restricted to a single content area (e.g., mathematics) will be simpler to plan for than needs which involve more than one curriculum area. On the other hand, student needs can often be most effectively addressed through a multi-area approach (e.g., science and reading), but it makes planning more complex.

A set of student needs related to a specific type of student performance (e.g., basic skills) will intensively concentrate on the improvement of that type of performance. On the other hand, many types of student performance are interdependent (e.g., basic skills and attitudes) in terms of lasting performance improvement.

A set of student needs restricted to a specific student population (e.g., grades 4-6) will permit close analysis of various types of student performance involved and the identification of student learning characteristics. On the other hand, student needs are often not restricted to a specific student population, but impact multiple populations (e.g., elementary, high school).

If you will be working with this package for the first time, it is recommended that you select a need situation which is limited to (1) a single curriculum area, (2) no more than three types of student performance to be improved, and (3) a specific student population spanning no more than three age or grade levels. Later, when you have become thoroughly familiar with the decision-making process presented in the package, you may want to consider a broader planning effort.

PLANNING COORDINATOR
INFORMATION SHEET #1

THE NEED SITUATION

Directions: Describe the student need situation which will be the focus of your school system's planning effort. Indicate (1) the curriculum area, (2) the types of student performance of concern, and (3) the student population involved.

CURRICULUM AREA	TYPES OF PERFORMANCE	STUDENT POPULATION

SELECTING PLANNING GROUP MEMBERS

A planning group of three to five people is ideal for working with **Curriculum and Instruction: Planning Improvement.** Because the package involves both administrative and instructional issues, it is recommended that at least one administrator and several teachers familiar with your student need situation be included as ongoing members of the planning group. Where a particular content area or several related areas are involved, the curriculum coordinator should also be included as a continuing member of the planning group.

You may also wish to include a parent or community representative for Unit 1 activities, but the remaining units (Units 2 and 3) are aimed more toward educational personnel within the school system. If available, an evaluation specialist should be invited to participate as a resource person throughout Units 1 and 2. Unit 3 search activities can be delegated, if necessary, to staff other than immediate members of the planning group. It is better, of course, if they do not have to be delegated.

The formation of the planning group should be discussed with key administrators from your school system. Once planning group members have been chosen, you may want to ask them to recommend resource persons whom they feel would be helpful in conjunction with specific planning activities.

When you have determined the members of your planning group, contact them to determine when they will be available and to identify any special arrangements which must be made to free them for planning. This will help you develop a realistic work schedule for the group.

PLANNING COORDINATOR

INFORMATION SHEET #2

PLANNING GROUP MEMBERS

Directions: For each of the planning tasks below, list the names of those individuals who will serve as members of the planning group. Also enter the names of any resource persons who should be invited to participate.

Check on the availability of each individual listed. If any special arrangements (released time, substitutes, etc.) are necessary to free an individual for planning activities, describe those arrangements.

TASKS	PLANNING GROUP MEMBERS	AVAILABILITY	SPECIAL ARRANGEMENTS
1 Developing the Need Definition			
2 Establishing Improvement Requirements			
3 Planning and Conducting the Search			

DEVELOPING A WORK SCHEDULE

Your next step should be to develop a work schedule for the completion of each of the three planning tasks involved in **Curriculum and Instruction: Planning Improvement.** First, be certain to schedule at least one group meeting for orientation of the entire planning group. Your orientation should include (1) an explanation of the student need situation selected as the focus of your school system's planning effort and (2) an overview of the three planning tasks involved in **Curriculum and Instruction. Note:** Allow time between the orientation meeting and your first Task 1 meeting to organize data on current student performance. Second, determine the total amount of time available for the completion of all three planning tasks. Third, check the calendar for periods of high activity when planning group members may be encumbered with other responsibilities. Consider vacation time, special holidays, etc. Then review the activities and estimated activity time requirements associated with each planning task and develop a reasonable work schedule:

	ACTIVITIES	GROUP MEETING TIME ESTIMATES
ORIENTATION OF PLANNING GROUP	1. Explanation of Student Need Situation 2. Overview of Planning Tasks	2 hours
TASK 1: DEVELOPING THE NEED DEFINITION	1. Clarifying Desired Student Performance 2. Establishing Performance Standards 3. Specifying Student Populations Expected to Meet Performance Standards 4. Documenting Current Student Performance 5. Reviewing the Need Definition	1 hour 2 hours 1 hour 2 hours 2 hours Total: 8 hours
TASK 2: ESTABLISHING IMPROVEMENT REQUIREMENTS	1. Analyzing Curriculum Content 2. Analyzing Content Sequencing 3. Analyzing the Instructional Approach 4. Analyzing the Support System 5. Refining Improvement Requirements	2½ hours 2½ hours 2 hours 2 hours 3 hours Total: 12 hours
TASK 3: PLANNING AND CONDUCTING THE SEARCH	1. Determining Search Boundaries 2. Specifying Kinds of Information to be Collected 3. Developing the Search Report Form 4. Selecting Search Tools 5. Conducting the Search*	¼ hour 1 hour ¾ hour 2 hours * Total: 4 hours

*Additional group meeting time may be required to form search task force and establish procedures. A varying amount of time is required for actually conducting search.

These time estimates should be qualified by considerations such as the scope of the planning effort; the knowledge, skills and experience of the members of your planning group; the availability of student performance data; the extent to which other individuals and groups from your school system are to be involved in the planning process; clearances or approvals to be obtained, etc. To reduce the amount of time required to actually work through a unit, planning group members should be told to read the materials in advance. Where considerable discussion may result from group interactions, you should try to anticipate how much time such discussions might consume. You may also want to split work sessions on particular units at a logical breaking points, to avoid undue fatigue and allow some time for assimilation and review.

PLANNING COORDINATOR
INFORMATION SHEET #3

WORK SCHEDULE

Directions: Develop a tentative work schedule for the planning group. Attempt to make your time estimates as realistic as possible.

TOTAL TIME AVAILABLE

CALENDAR DATES

_____ to _____
(Start) (Stop)

TASK TIME ESTIMATES	CALENDAR DATES
1. Orientation of Planning Group	_____ to _____
2. Developing the Need Definition	_____ to _____
3. Establishing Improvement Requirements	_____ to _____
4. Planning and Conducting the Search	_____ to _____

PLANNING COORDINATOR
INFORMATION SHEET #3 (Continued)

WORK SCHEDULE

	ACTIVITIES	GROUP MEETING TIME ESTIMATES	MEETING SCHEDULE	
			Calendar Dates	Times
ORIENTATION OF PLANNING GROUP	1. Explanation of Student Need Situation 2. Overview of Planning Tasks			
TASK 1: DEVELOPING THE NEED DEFINITION	1. Clarifying Desired Student Performance 2. Establishing Performance Standards 3. Specifying Student Populations Expected to Meet Performance Standards 4. Documenting Current Student Performance 5. Reviewing the Need Definition			
TASK 2: ESTABLISHING IMPROVEMENT REQUIREMENTS	1. Analyzing Curriculum Content 2. Analyzing Content Sequencing 3. Analyzing the Instructional Approach 4. Analyzing the Support System 5. Refining Improvement Requirements			
TASK 3: PLANNING AND CONDUCTING THE SEARCH	1. Determining Search Boundaries 2. Specifying Kinds of Information to be Collected 3. Developing the Search Report Form 4. Selecting Search Tools 5. Conducting the Search			

PREPARING A RESOURCE ESTIMATE

The use of this package does not require any special personnel, facilities, materials, supplies, or services. If group meetings can be scheduled during the school day, other incidental costs can probably be absorbed under your school system's regular operating budget. Reproduction of materials, typing, mailing and/or telephone charges associated with Unit 3 search activities are not ordinarily high cost items.

Freeing group members and other staff to participate in various work sessions may involve some additional expense to your school system. Unless there is in-service time available or released time arrangements can be made, the school system may have to hire substitutes for teachers. Should your group meetings be scheduled after school hours, on weekends, etc. then staff may have to be compensated for their time. Your school system may want to engage a consultant to act as an advisor at particular points in the planning process. In such a case, you will also have to calculate consultant fees and any other service charges involved.

At this time, you should develop a resource estimate for the total planning effort. It will establish practical limits for group planning activities. It will also help you identify any extraordinary expenses not covered under your school system's operating budget. You may want to negotiate a small budget to cover extraordinary expenses and/or to provide adequate resources in support of group planning activities.

PLANNING COORDINATOR

INFORMATION SHEET #4

RESOURCE ESTIMATE

Directions: Estimate the resources required for the completion of each planning task. Where associated costs cannot be handled under your school system's regular operating budget, enter those costs under the column labeled "extraordinary expenses." You may want to review the activities associated with each task (page 15) before developing your estimate.

TYPES OF RESOURCES	COST ESTIMATES	EXTRAORDINARY EXPENSES
TASK 1: DEVELOPING THE NEED DEFINITION		
Released Time		
Compensation		
Consultant Fees		
Special Service Fees		
Reproduction		
Typing		
Mailing		
Telephone		
Travel		
Task Sub-Total		
TASK 2: ESTABLISHING IMPROVEMENT REQUIREMENTS		
Released Time		
Compensation		
Consultant Fees		
Reproduction		
Typing		
Mailing		
Telephone		
Travel		
Task Sub-Total		

PLANNING COORDINATOR

INFORMATION SHEET #4

RESOURCE ESTIMATE (Continued)

TYPES OF RESOURCES	COST ESTIMATES	EXTRAORDINARY EXPENSES
TASK 3: PLANNING AND CONDUCTING THE SEARCH		
Released Time		
Compensation		
Consultant Fees		
Special Service Fees		
Reproduction		
Typing		
Mailing		
Telephone		
Travel		
Task Sub-Total		

TASKS	COST ESTIMATES	EXTRAORDINARY EXPENSES
1		
2		
3		
TASK TOTALS		

INVOLVING OTHERS

There may be a number of individuals and groups within your school system and some from outside of your school system who should participate in the planning effort. They may have the right to directly participate in making certain kinds of decisions. They may be able to provide you with vital expertise essential to the completion of a particular planning task. In some instances they should be consulted because they will be affected by or will bear responsibility for carrying out a particular decision. In other instances, they can furnish the planning group with crucial information for decision making. You will definitely want to communicate with all important individuals and groups in your school system to keep them informed of your purposes and progress. Doing so will insure their cooperation and their support for future implementation of the decisions made by the planning group. Finally, there are certain decisions which may require specific approval by a key administrator, by the local teacher organization, by a community advisory committee.

Take time to consider which individuals and groups from your school system should participate in the planning effort for any of the reasons discussed above:

- ☐ Superintendent
- ☐ Board of Education Members
- ☐ Central Office Administrative Staff
- ☐ Curriculum Coordinators
- ☐ Principals
- ☐ Subject Matter Specialists
- ☐ Supervisors or Department Heads
- ☐ Teachers
- ☐ Parents
- ☐ Community Members
- ☐ Students
- ☐ Consultants
- ☐ Other

PLANNING COORDINATOR

INFORMATION SHEET #5

INVOLVEMENT IN THE PLANNING EFFORT

Directions: Enter the names of individuals or groups who should be involved in the planning effort in the left hand column of the chart. Next review the planning tasks listed at the head of the chart. Then consult the key below which describes the various kinds of involvement possible. Finally, enter an appropriate number from the key in each box corresponding to the particular planning task(s) in which the participant is to be involved – either directly or indirectly.

PLANNING TASKS

PARTICIPANTS	1 Developing the Need Definition	2 Establishing Improvement Requirements	3 Planning and Conducting a Search

KEY

1. Should directly participate in decision making.
2. Should act in an advisory capacity.
3. Should be consulted in making decisions.
4. Should provide information for decision making.
5. Should be kept informed of decisions made.
6. Must approve decisions made.

PREPARING THE NEED DEFINITION

Before the planning group begins work on Unit 1 (Task 1: Developing the Need Definition), a preliminary need definition must be prepared to insure that they have a common data base for planning. The need definition should include data on current student performance which is directly related to the need situation. It is strongly recommended that you have members of the planning group help you organize the data. Specific assignments can be worked out at the group orientation meeting.

First you have to review the type(s) of student performance involved in the need situation. Then you have to decide (1) what kinds of data on current student performance ought to be collected and (2) which sources are likely to yield the performance data required.

It is advisable to collect both objective and subjective data. Parental perceptions, for example, can often help clarify student standardized test results. Student self-reports on attitudinal questionnaires can reinforce formal observations of teacher-pupil interactions in the classroom, and vice versa. Close examination of student work samples can help validate the considered judgments of community members regarding student mastery of basic skills.

In deciding which kinds of student performance data to collect, you should be primarily concerned with securing data which is valid, reliable, and representative of the student population under consideration. Valid data is data which adequately samples the type(s) of student performance of concern. Reliable data is data which provides consistent, unambiguous information about student performance. Data which is representative of a particular student population adequately samples that population in terms of standards which are appropriate to the characteristics of that population as a whole.

Once you have determined which kinds of data are to be collected, your next step is to identify the sources from which the data can be obtained. It is strongly recommended that you obtain data from a variety of sources, so that your preliminary need definition will reflect a full array of information relevant to the need situation. Immediately following is a list of sources of data commonly utilized by school systems. Which are currently being used in your school system? Which can provide you with the kind of information on current student performance required for the preliminary need definition?

SOURCES OF DATA	EXAMPLES
Banks of Objectives	Instructional Objectives Exchange (IOX)
Documents	School Board Policy Statement
Follow-Up Studies	Poll of Recent Graduates
Forecasts	Scenarios of the Future
Group Meetings	Teacher Planning Session
Inconspicuous Measures	Student Dropout Statistics
Interviews	Consultation with Reading Specialist
Media	Newspaper Articles
Observation	Formal Observation of Teacher-Pupil Interactions in the Classroom
Personal Contacts	Informal Discussions with Students
Professional Publications	Research Reports
Questionnaires	Community Survey
Records	Student Files (Achievement and Aptitude Test Scores, Teacher Comments and Ratings, Family Background Information, etc.)
Reports of Test Results	Standardized Test Score Profiles
Reviews by Experts	Recommendations of University Consultant
Telephone Polls	Random Poll of Business and Civic Leaders
Work Samples	Samples of Student Writing

If at all possible, you should work closely with an evaluation specialist in preparing the preliminary need definition. Data interpretation can be quite complex, and the group's planning will be realistic only if based on valid and reliable information that accurately represents the performance of the particular student population involved. Furthermore, as you work with Unit 1, individual members of the group may require clarification of the data included in the need definition or may introduce additional data for consideration by the group. Having an evaluator present at your meetings as a resource person can significantly enhance the group's understanding of the need situation and expedite their progress.

EXAMPLE

INFORMATION SHEET #6

PRELIMINARY NEED DEFINITION

DESIRED STUDENT PERFORMANCE	CURRENT STUDENT PERFORMANCE
☑ Basic Skills Students should: • Be able to perform basic arithmetic operations. ☑ Higher Order Processes Students should: • Be able to apply math skills in practical consumer situations.	Data from the Standard Math Achievement Test indicates that 275 of 750 students in grades 4-6 achieved scores which fell at or above the 50th percentile and that 475 achieved scores which fell below the 50th percentile. Data from the Parent Questionnaire Survey indicates that 100 out of 200 parents responding to the survey felt that the majority of students completing grade 6 lacked basic consumer math skills.

PLANNING COORDINATOR

INFORMATION SHEET #6

PRELIMINARY NEED DEFINITION

Directions: Draft a definition of the need situation which has been selected as the focus for your planning effort. The definition should specify the type(s) of desired student performance of concern and provide data on current student performance. For each type of desired student performance, describe (1) available source(s) of data on current student performance, (2) current level(s) of student performance (in terms of specific student behaviors wherever possible), and (3) numbers of students involved. An example is provided on page 33.

DESIRED STUDENT PERFORMANCE	CURRENT STUDENT PERFORMANCE
Types of Performance: ☐ ☐ ☐	

COORDINATING PLANNING TASKS

COORDINATING PLANNING TASKS

This section helps you to prepare for and conduct the group planning activities associated with each task/unit in **Curriculum and Instruction: Planning Improvement.** It contains:

1. a brief description of each planning task,
2. a definition of your role as coordinator in relation to each task,
3. a preparation checklist to use before beginning work in each unit,
4. suggested procedures for facilitating the work of the planning group, and
5. a completion checklist to use before finishing work in each unit.

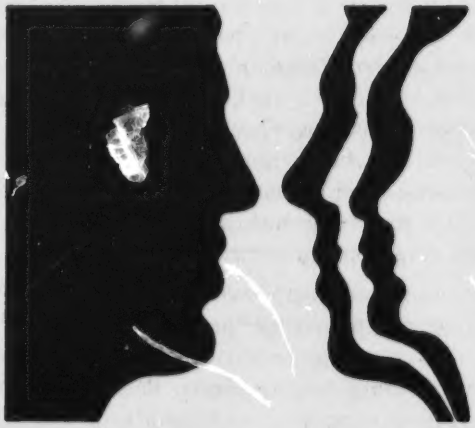
Before beginning work in any unit, you should review the task description, your own role definition, preparation and completion checklists. Then you should read through the unit in **Curriculum and Instruction: Planning Improvement**, noting the procedures you intend to use in the margins of the unit text. This will considerably simplify the actual management of your group work sessions. Procedures may have to be modified to suit the group's work style, but you will have more control over each group meeting if you determine procedures in advance. The preparation checklist will help you judge when you are ready to begin work on a particular task and the completion checklist will help you judge when the task has been satisfactorily completed.

As coordinator, it is your responsibility to notify all group members and other participants of scheduled meetings, to arrange for a suitable meeting place, and to order any refreshments desired. It is also your responsibility to provide all participants with copies of appropriate materials from **Planning Improvement.** Some group members will require a complete set of the materials (excluding the coordinator's manual). Other group members or participants may only require a copy of a single unit. If you expect the materials to be read prior to your meeting, then be sure to provide each group member and participant with a copy of those materials well in advance of the meeting.

Planning Improvement is designed so that each group member completes information sheets on an individual basis as he or she works through a particular unit. A master set of information sheets for documenting the group's findings, discussion results, and decisions is included at the end of this manual. This master set must be completed as a formal record of the group's work. Rather than try to record information on the master set yourself, you may want to have another professional, a secretary or paraprofessional present to record the group's decisions and findings. You can, of course, appoint one group member to act as recorder.

To avoid wasting time copying or recopying information, you should make arrangements for rapid duplication of materials which all group members need in order to progress with their planning. It is also advisable to have a chalkboard or flip chart which can be used to outline topics to be addressed by the group and to record points made during group discussion.

You are responsible for drafting final copies of all planning documents (information sheets, report forms, etc.). You may elect to delegate this responsibility, but should review all drafts when completed. Finally, you should see that planning documents are submitted to appropriate decision makers within your school system. If specific approvals are required, you should arrange to secure those approvals.



You will, of course, want to review the information provided in this section before beginning work on a particular unit. It is strongly recommended that you review the entire section prior to any planning activities. The units are interrelated, and you will be more effective if you have a grasp of the planning process as a whole.

UNIT 1

TASK DESCRIPTION

This task involves the use of various sources of data to clarify the nature and extent of your school system's student needs. Information about desired and current student performance, performance standards, and about various student populations is synthesized in a refined need definition. That need definition provices a basis and direction for subsequent planning activities.

COORDINATOR'S ROLE

You should insure that the planning group has immediate access to a range of high quality data on student performance. This means that student performance data has to be collected, summarized, and interpreted (if necessary) in advance of the group's meeting.

If you have asked members of the planning group to read through the materials in advance, you will be primarily concerned with facilitating group discussion. If group members will not have read the materials prior to your meeting, you will want to alternate reading and discussion as you work through the unit. Master set information sheet(s) should be completed as the group approaches or reaches agreement on particular decisions and appears ready to proceed to the next activity or set of activities.

Try to anticipate where group members may experience difficulties so that you can provide preliminary clarification. You can also direct them to review examples, etc., in order to reinforce their understanding of the text.

Sometimes you may find that special expertise is necessary to assist the group with data interpretation, the specification of objectives or performance standards, etc. In such cases, you should arrange for evaluators and/or subject matter specialists to attend the group meetings when needed. You should also make explicit plans for the involvement of other individuals and/or groups when and where appropriate.

UNIT 1

PREPARATION CHECKLIST

	Yes	No
1. Have you prepared a preliminary need definition to be discussed by the group at their initial meeting?	☐	☐
2. Have you secured sufficient copies of the Unit 1 materials for group members and other participants?	☐	☐
3. If the Unit 1 materials are to be read in advance of your meeting, have you circulated copies to all members of the group in advance?	☐	☐
4. Are all group members aware of the agenda, date, time, and purpose of all Unit 1 meetings?	☐	☐
5. Have you had copies of the preliminary need definition duplicated and possibly circulated to members of the planning group in advance of your initial meeting?	☐	☐
6. Have you made definite arrangements for facilities, supplies, duplication, secretarial support, etc.?	☐	☐
7. Have you arranged for released time to free group members for planning activities?	☐	☐
8. Have you funds to cover any compensation costs?	☐	☐
9. If special expertise is required, do you have a definite commitment from the individual(s) involved?	☐	☐
10. Have you clarified which other individuals and/or groups (if any) are to be involved in Unit 1 activities and the nature of their involvement?	☐	☐
11. Have those individuals and groups been contacted?	☐	☐
12. Have you prepared a brief orientation to Unit 1 activities for use with the planning group?	☐	☐

UNIT 1

PROCEDURES

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Introduction	Unit 1, pages 1-1 to 1-4.	1. Clarify the concept of "student need" and then ask the planning group to review page 1-1.	Discuss in general terms the gap(s) between desired and current student performance which are motivating improvement of curriculum and instruction in your school system.
		2. Use the example of a refined need definition provided on pages 1-2 and 1-3 to illustrate the three major elements to be considered in developing a need definition: types of student performance, performance standards, student populations.	Explain that the planning group's work in Unit 1 should result in a refined need definition and that the first four Information Sheets in Unit 1 all feed into the final Information Sheet (#5, pages 1-67 to 1-71).
		3. When you are satisfied that each member of the planning group clearly understands the key elements of a need definition, turn to the five basic steps for refining a need definition which are outlined on page 1-4.	Review and clarify the preliminary definition you have prepared before examining the five basic steps for refining a need definition.
Case Study	Unit 1, pages 1-5 to 1-26.	1. Explain that the case study is based upon the example of a refined need definition found on pages 1-5 to 1-26.	You may want to have the planning group read through the case study in advance.
		2. Work through the case study with the planning group, beginning with the preliminary need definition and proceeding step by step. Point out the interrelationships among the steps and the importance of continuous refinement of decisions made at each step based upon new and/or more detailed data.	Use the two charts following the descriptive information related to each step to emphasize new elements added to the need definition as well as modifications made to already existing elements.
		3. Have the group re-examine the example on pages 1-2 and 1-3. Try to ascertain whether the case study has strengthened their understanding of the concept of "student need" and of the three major elements involved in developing a need definition: types of student performance, performance standards, student populations.	

UNIT 1

PROCEDURES

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Step 1: Clarifying Desired Student Performance	Unit 1, pages 1-29 to 1-33. Information Sheet #1, page 1-33.	1. Tell the planning group that the guidelines are practical recommendations for completing the five step process leading to a refined need definition.	Give them an overview of the Information Sheets they will be completing at each step, feeding into Information Sheet #5, pages 1-67 to 1-71. You may want to use a chalkboard, flip chart, or wall chart to help the planning group maintain an overview of the decisions they make as they work through the unit. Individual group members also have the option of using the large copies of Information Sheet #5 contained in the pocket at the end of Unit 1 as worksheets.
		2. Allow each member of the group sufficient time to read the text on pages 1-29 and 1-30.	
		3. Ask the group to explore the possible relevance of a variety of types of performance to their school system's student needs.	Begin with the type(s) suggested by the preliminary need definition. Encourage group members to specify other types, citing the reasons for their recommendations. Emphasize that they should not restrict themselves to the data presented in the preliminary need definition, but should consult other sources of data.
		4. Direct the group to turn to page 1-33 and ask them to select on an individual basis the types of performance they view as most relevant to the school system's student needs.	Have each group member complete Information Sheet #1, page 1-33. Tell them to cite the specific sources of data which have influenced their selections.
		5. Have them compare, discuss, and justify their decisions. Then try to move them toward agreement on selected types of performance.	
		6. For each type of performance selected, have the group describe the performance goal(s) to be achieved.	Use the example provided on page 1-31 to illustrate the level at which desired student performance should be specified.

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Step 2: Establishing Performance Standards	Unit 1, pages 1-35 to 1-45. Information Sheet #2, page 1-45.	1. Clarify the reasons for establishing performance standards. Performance standards provide a basis for determining whether any gaps exist between desired and current student performance. They are therefore critical to developing a refined definition of the school system's student needs.	Tell the planning group that statements describing the general types of student performance desired are not sufficient for determining the exact nature and extent of their student needs. Emphasize that performance standards further specify each type of desired student performance and serve as a gauge for judging the adequacy of current student performance.
		2. Define and illustrate each of three components of a performance standard: representative student behaviors, sources of data, and measurement criteria.	Use the example provided on page 1-35.
		3. Have the group review the text dealing with the identification of representative student behaviors, pages 1-36 to 1-38.	Tell them that representative student behaviors will help them refine their understanding of the nature of their student needs.
		4 Ask them to specify student behaviors for one type of student performance.	Analyze the example(s) provided on page 1-35 and/or page 1-43, pointing out the difference between a general type of performance, a representative student behavior, and a specific behavioral objective. Have group members suggest behavioral objectives for several of the representative student behaviors in the example.
		5. Have the planning group critique the behaviors identified, applying the criteria outlined on page 1-36.	
		6. Review with the planning group source materials related to the types of student performance selected as the focus for your school system's improvement effort.	Survey available source materials such as curriculum guides, banks of objectives, texts, articles, taxonomies, learning continuums, research reports in advance of meeting with the planning group. You may also want to ask them to help you locate source materials. Source materials can be reviewed by planning group members prior to the meeting.

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Step 2: Establishing Performance Standards (Continued)	Unit 1, pages 1-35 to 1-45. Information Sheet #2, page 1-45.	7. Ask planning group members to define representative student behaviors for each type of performance described on Information Sheet #1, page 1-33.	Use a chalkboard or flip chart to focus group discussion and facilitate revisions and additions. Guide the planning group in a final review of each set of behaviors, applying the criteria outlined on page 1-36.
		8. Have the planning group complete the first column of Information Sheet #2, page 1-45.	Be certain that a master copy of Information Sheet #2 is completed.
		9. Review the different sources of data which could be used to assess student achievement of desired performance.	Ask planning group members to sugoest sources in addition to those outlined on page 1-39.
		10. Have the group determine which individuals and/or groups from the school system ought to be consulted about student performance.	
		11. Help the group decide which sources of data could supply valid and reliable information about the student behaviors chosen to represent each type of desired student performance.	If the services of an evaluation specialist are available, they should be used at this point. Stress the importance of choosing a limited number of sources likely to supply high quality data.
		12. Have the planning group complete the second column of Information Sheet #2, page 1-45.	Refer to the example provided on page 1-43. Be certain that a master copy of Information Sheet #2 is completed.
		13. Explain that measurement criteria are quantitative and/or qualitative standards associated with specific sources of data. Tell the planning group that measurement criteria deal with acceptable levels of student performance and will eventually help them refine their understanding of the extent of each student need (i.e., the degree to which students are able or are not able to achieve desired student performance).	Review the chart on page 1-41 with the group and use the examples provided to illustrate the concept of "measurement criteria."
		14. Ask the planning group to read the text, pages 1-41 to 1-42.	

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Step 2: Establishing Performance Standards (Continued)	Unit 1, pages 1-35 to 1-45. Information Sheet #2, page 1-45.	15. Work with the group to specify measurement criteria for each source of data listed on Information Sheet #2, page 1-45.	Analyze the characteristics of relevant student populations described in the Unit 1 need definition before attempting to specify measurement criteria.
		16. Have the planning group complete the third column of Information Sheet #2, page 1-45.	Refer to the example provided on page 1-43. Be certain that a master copy of Information Sheet #2 is completed.
Step 3: Specifying Student Populations Expected To Meet Performance Standards	Unit 1, pages 1-47 to 1-53. Information Sheet #3, page 1-53.	1. Have the planning group read through the text, pages 1-47 to 1-49.	
		2. Using the list of characteristics on page 1-47, lead the planning group in a discussion of the characteristics of various groups, sub-groups, and/or individuals included in the overall student population.	
		3. Then ask the planning group to define the specific populations of students within the overall student population expected to meet the performance standards set for each type of desired student performance.	Have them analyze the examples provided on page 1-49 and/or page 1-51 before beginning. Ask them to decide (1) which students can be expected to achieve particular student behaviors and then (2) which can be expected to satisfy particular measurement criteria and to what extent. Various levels of satisfactory performance may be specified for particular populations within the overall student population.
		4. Have them complete Information Sheet #3, page 1-53. The planning group should specify the characteristics of each specific population of students described on the Information Sheet and then conduct an organized review of all performance standards to insure that they represent appropriate and reasonable performance expectations for the student populations involved.	Refer to the example provided on page 1-51. Be certain that a master copy of Information Sheet #3 is completed.

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Step 4: Documenting Current Student Performance	Unit 1, pages 1-55 to 1-59. Information Sheet #4, page 1-59.	1. Have the planning group review the sources of data outlined on page 1-40 before beginning this step.	
		2. Tell the planning group to read page 1-55. Then ask them to examine available data on current student performance and to suggest additional sources of data which could be consulted.	Emphasize that the data should relate to the same student behaviors which were chosen to represent desired student performance. Stress the importance of using measurement criteria which are the same as or at least comparable to those established for desired student performance. Note that the student population in each instance should at least be a representative sample of the student population expected to achieve desired student performance. You may want to refer the planning group to the case study for an example of how they should proceed.
		3. Direct the planning group to document current student performance, following the directions provided in the text on page 1-56. Information Sheet #4, page 1-59, should be used to document current student performance.	Refer to the example provided on page 1-57. A master copy of Information Sheet #4 should be completed.
Step 5: Reviewing the Need Definition	Unit 1, pages 1-61 to 1-71. Information Sheet #5, pages 1-67 to 1-71.	1. Provide the planning group with a draft of the need definition they have developed to this point.	Present all information on a chart similar to that used in the case study and found on pages 1-67 and 1-69.
		2. Using the questions provided on page 1-61 guide the planning group in a critique of the need definition.	If evaluation or subject matter specialists can be present for the critique, their recommendations can be sought throughout the critique.
		3. Have the planning group specify further refinements to be made to the need definition and/or additional data which should be collected.	You may want to formalize their decisions in written form and charge several members of the planning group with responsibility for making the specified refinements. Group planning meetings can be postponed to allow for the collection of additional data.

PROCEDURES

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Step 5: Reviewing the Need Definition (Continued)	Unit 1, pages 1-61 to 1-71. Information Sheet #5, pages 1-67 to 1-71.	4. Have the planning group complete Information Sheet #5, pages 1-67 and 1-69, incorporating refinements and any additional data collected.	Be certain that a master copy of Information Sheet #5, pages 1-67 and 1-69 is completed.
		5. Confirm that gaps do exist between desired and current student performance before discussing the relative priority of student needs.	
		6. Ask the planning group to decide which of the factors outlined on page 1-62 should determine need priorities.	The factors can be weighted in terms of importance by assigning numerical values. Members of the planning group can be asked to suggest additional factors worth consideration.
		7. Guide the planning group in a discussion of the priority of the students needs described in the need definition.	Needs can be rank ordered or simply grouped according to those of greater or lesser importance. You can employ a chalkboard or flip chart for factor selection and weighting.
		8. Have the planning group document the results of their discussion, using Information Sheet #5, page 1-71.	Be certain that the master copy of Information Sheet #5, page 1-71, is completed.

UNIT 1

COMPLETION CHECKLIST

		Yes	No
1.	Has a refined definition of your school system's student needs been developed?	☐	☐
2.	Has the planning group considered the relative priority of those student needs?	☐	☐
3.	Does the refined need definition clearly describe types of desired student performance, related performance standards, and student population(s) expected to meet the standards?	☐	☐
4.	Does the refined need definition clearly document current student performance in terms of performance standards actually used in assessment, and student populations meeting/not meeting those performance standards?	☐	☐
5.	Do the performance standards include representative student behaviors, sources of data, and measurement criteria?	☐	☐
6.	Does the refined need definition discuss the characteristics of the student population(s) involved?	☐	☐
7.	Has the refined need definition been submitted for review by appropriate school system administrators, staff, etc.?	☐	☐
8.	Have sufficient copies of the refined need definition (Information Sheet #5, pages 1-67 to 1-71) been duplicated for use by the planning group working with Unit 2?	☐	☐

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UNIT 2

TASK DESCRIPTION

This task involves the use of the refined need definition to design an ideal learning environment for promoting desired student performance. After the group has discussed (1) the kind of learning environment which would be ideal and (2) has compared the ideal with current practice, a set of specific requirements for the improvement of curriculum and/or instruction are established. Those requirements may be related to curriculum content, content sequencing, the instructional approach and/or the support system. Finally, general means of improvement are selected for each improvement requirement or set of related requirements.

COORDINATOR'S ROLE

This unit, more than any other in the package, will produce the best planning results in an open, creative work setting. As coordinator, you should strive to encourage full contribution by all members of the planning group. Take time at the beginning of the group's initial meeting to review the refined need definition developed in Unit 1, emphasizing that it should be the primary focus for all subsequent decision making.

It is very important that group members understand that Unit 2 presents them with a wide variety of improvement options and a framework for determining the relevance and importance of those options as means of addressing their student needs. They should not expect that it will prescribe a specific strategy for improvement.

The unit contains a number of checklists to assist the group in designing an ideal student learning environment. Because of the detailed nature of the checklists, you will have to help the group set boundaries for their discussion before close exploration of the contents of the checklists. Direct the group to skim the checklists at a broad topical level first. Have them select the most crucial topics and then allow them to discuss those topics in greater depth. What you want to avoid is having the group work through a highly detailed checklist without a clear understanding of what they are working toward.

As in Unit 1, the group may need to have access to individuals with special expertise. Their discussion of curriculum content selection and content sequencing, for example, can be enriched by having a subject matter specialist, curriculum developer, or curriculum coordinator present as a resource person. You should try to anticipate where and when such resource persons may be needed and arrange for them to be present.

The issues discussed in Unit 2 are issues ordinarily dealt with by educational personnel. This does not mean that you should ignore the many other sources of information discussed in Unit 1. They can provide a variety of helpful information to enrich the quality of the group's decision making in Unit 2. You may not want a great deal of direct participation in Unit 2 decision making by non-educators, but you should insure that there is a substantial amount of indirect input from students, from parents, from community members, etc. Different members of the group might be assigned responsibility for polling various segments of your school system's constituents on specific topics and issues.

UNIT 2

PREPARATION CHECKLIST

	Yes	No
1. Have you duplicated copies of the refined need definition (Unit 1, Information Sheet #5, pages 1-67 to 1-71) for all members of the planning group?	☐	☐
2. Have you secured sufficient copies of the Unit 2 materials for group members and other participants?	☐	☐
3. If the Unit 2 materials are to be read in advance of your meeting, have you circulated copies to all members of the group in advance?	☐	☐
4. Are all group members aware of the agenda, date, time, and purpose of all Unit 2 meetings?	☐	☐
5. If group members are to review and familiarize themselves with the Unit 1 need definition in advance of your meeting, have you circulated copies to them in advance?	☐	☐
6. Have you made definite arrangements for facilities, supplies, duplications, secretarial support, etc.?	☐	☐
7. If special expertise is required, do you have a definite commitment from the individuals involved?	☐	☐
8. Have you clarified which other individuals and/or groups (if any) are to be involved in Unit 2 activities and the nature of their involvement?	☐	☐
9. Have those individuals and groups been contacted?	☐	☐
10. Have you prepared a brief orientation to Unit 2 activities for use with the planning group?	☐	☐

PROCEDURES

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Introduction	Unit 2, pages 2-1 to 2-8.	1. Ask group members to read through the Introduction to Unit 2, if they have not already done so.	Make certain that each member has a typed copy of the Need Definition from Unit 1 (Information Sheet #5, pages 1-67 to 1-71). Clarify any terms which may be unfamiliar to members of the group. The terms "curriculum content," "content sequencing," "instructional approach," "support system," and "improvement requirement" should be defined. The four basic planning steps used in Unit 2 should also be reviewed with the group.
		2. Have the group decide which student need or set of related student needs included in the Unit 1 need definition should receive primary attention in their planning.	Use the Worksheet on page 2-7 to document their decisions. The example on page 2-5 illustrates how to complete the Worksheet.
Curriculum Content	Unit 2, pages 2-9 to 2-17. Information Sheet #1, page 2-17.	1. Have the planning group review the planning steps outlined on pages 2-9 to 2-12.	Take time to discuss in detail the types of content described on page 2-10.
		2. Summarize the directions provided in the text on page 2-9 for the group.	Use the example, pages 2-13 and 2-15, to illustrate how to complete each step. Emphasize that the same decision making process will be followed in discussing content sequencing, instructional approach, and the support system. Note that the examples throughout the unit are based upon the sample need definition from Unit 1, pages 1-2 and 1-3.
		3. Have each member of the planning group individually analyze the content implications of the needs chosen from their need definition (Worksheet, page 2-7).	Remind them that their task is to select types of content which would be **ideal** for helping students achieve desired student performance, considering the characteristics of each student population involved. Review the types of content listed on page 2-10 and the guideline questions on pages 2-11 to 2-12 before asking them to make content selection decisions.

PROCEDURES

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Curriculum Content (Continued)	Unit 2, pages 2-9 to 2-17. Information Sheet #1, page 2-17.	4. Conduct a group discussion of the types of content selected by individual members of the planning group.	Ask each group member to provide reasons for his/her recommendations.
		5. Encourage the planning group to reach agreement on the types of content which would be ideal for promoting desired student performance.	Each individual's copy of Information Sheet #1, page 2-17, can be used for working purposes.
		6. Direct them to formulate reasons for each of their decisions about ideal content.	Have them use their individual copies of Information Sheet #1, page 2-17 for working purposes.
		7. Have them complete the section of Information Sheet #1 dealing with "ideal" content.	
		8. Guide the planning group in an analysis of your school system's present curriculum content.	
		9. Have them complete the section of Information Sheet #1 dealing with "present content."	
		10. Help the planning group make an explicit comparison of their "ideal" and "present" curriculum content.	You may want to use a chalkboard or flip chart to facilitate comparison.
		11. Guide them in drafting a set of improvement requirements based upon the results of the comparison.	Tell the planning group that where comparison reveals (1) that an element of ideal content is lacking and/or (2) that an element of ideal content is not present to a satisfactory extent in their present curriculum, they should identify an improvement requirement.
		12. Have the planning group screen all improvement requirements, separating genuine requirements from preferences.	Explain that preferences are those requirements which are not considered absolutely essential for promoting desired student performance. Tell them that their requirements will help them locate suitable means of improvement and that preferences will help them select the most appropriate means of improvement.

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Curriculum Content (Continued)	Unit 2, pages 2-9 to 2-17. Information Sheet #1, page 2-17.	13. Have the planning group complete Information Sheet #1, page 2-17.	Be certain that a master copy of Information Sheet #1 is completed.
Content Sequencing	Unit 2, pages 2-19 to 2-29. Information Sheet #2, page 2-29.	1. Have the planning group review the planning steps outlined on pages 2-19 to 2-23.	Take time to discuss in detail the types of content sequencing described on pages 2-20 to 2-21.
		2. Summarize the directions provided in the text on page 2-19 for the group.	Use the example provided on pages 2-25 to 2-27 to illustrate how to complete each step.
		3. Have each member of the planning group generate recommendations regarding "ideal" content sequencing for each type of content described on Information Sheet #1, page 2-17.	Emphasize the necessity of providing supporting reasons for each recommendation. You may want to use a chalkboard or flip chart to focus discussion.
		4. Encourage the planning group to reach agreement on ideal content sequencing for each type of content.	Each individual's copy of Information Sheet #2, page 2-29 can be used for working purposes. Stress that their supporting reasons for each decision should cite factors related to desired student performance, student characteristics, and/or the particular type of content in question. Review with them the guideline questions on page 2-22.
		5. Have them complete the section of Information Sheet #2 dealing with "ideal" content sequencing.	
		6. Guide the planning group in an analysis of the content sequencing of your school system's present curriculum content.	
		7. Have them complete the section of Information Sheet #2 dealing with "present content sequencing."	
		8. Help the planning group make an explicit comparison of "ideal" and "present" content sequencing.	You may want to use a chalkboard or flip chart to facilitate comparison.

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Content Sequencing (Continued)	Unit 2, pages 2-19 to 2-29. Information Sheet #2, page 2-29.	9. Guide them in drafting a set of improvement requirements based upon the results of the comparison.	
		10. Have the planning group screen the improvement requirements, separating requirements from preferences.	
		11. Have the planning group complete Information Sheet #2, page 2-29.	Be sure that a master copy of Information Sheet #2 is completed.
Instructional Approach	Unit 2, pages 2-31 to 2-43. Information Sheet #3, page 2-43.	1. Have the planning group review the first paragraph on page 2-31 and the planning steps on page 2-36.	Remind them that their first step is to specify an ideal instructional approach. Review the example on pages 2-37 to 2-41 before beginning work in this section.
		2. Allow each member of the group time to review the definition of each of the instructional strategies outlined on pages 2-31 to 2-36.	Clarify terms where necessary. Avoid a discussion of specific options at this point.
		3. Ask individual planning group members to select the strategies they consider most critical for promoting desired student performance.	Allow time for exploration of the reasons underlying individual group members' selection of particular strategies.
		4. Conduct a group discussion of the strategies selected and help the planning group reach agreement on a limited number of critical strategies.	Each individual's copy of Information Sheet #3, page 2-43, can be used for working purposes at this step and the next.
		5. Work through the checklists of options associated with each strategy (pages 2-31 to 2-36) with the planning group. Ask the group to discuss the options associated with each of the strategies they have selected and to choose the option(s) to be included in their ideal instructional approach.	As the planning group discusses various options, emphasize the importance of having supportive reasons for each option chosen. The reasons should relate to desired student performance, student characteristics, and/or previous decisions about curriculum content/content sequencing.

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Instructional Approach (Continued)	Unit 2, pages 2-31 to 2-43. Information Sheet #3, page 2-43.	6. Have the planning group complete the section of Information Sheet #3 dealing with "ideal" instructional approach.	Help them formulate a reason for each decision, where they have not already done so.
		7. Guide the planning group in an analysis of your school system's present instructional approach.	
		8. Have them complete the section of Information Sheet #3 dealing with "present" instructional approach.	
		9. Help the planning group make an explicit comparison of their "ideal" and "present" instructional approaches.	
		10. Guide them in drafting a set of improvement requirements based upon the results of the comparison.	
		11. Have the planning group screen all improvement requirements, separating genuine requirements from preferences.	
		12. Have the planning group complete Information Sheet #3, page 2-43.	Be certain that a master copy of Information Sheet #3 is completed.
Support System	Unit 2, pages 2-45 to 2-59. Information Sheet #4, page 2-59.	1. Have the planning group read the first paragraph on page 2-45 and then review the improvement requirements they have specified on Information Sheets #1, 2, and 3, pages 2-17, 2-29, and 2-43.	Emphasize that their first step is to determine what would constitute an **ideal** support system. Review the example on pages 2-53 to 2-57 before beginning work in this section.
		2. Allow each member of the group time to review the definition of each of the support system strategies outlined on pages 2-45 to 2-51.	Clarify terms where necessary. Avoid a discussion of specific options at this point.
		3. Ask individual planning group members to select the strategies they consider most critical for promoting desired student performance.	Allow time for exploration of the reasons underlying individual group members' selection of particular strategies.

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Support System (Continued)	Unit 2, pages 2-45 to 2-59. Information Sheet #4, page 2-59.	4. Conduct a group discussion of the strategies selected and help the planning group reach agreement on a limited number of critical strategies.	Each individual's copy of Information Sheet #4, page 2-59, can be used for working purposes at this step and the next.
		5. Work through the checklist of options associated with each strategy (pages 2-45 to 2-51) with the planning group. Ask the group to discuss the options associated with each of the strategies they have selected and to choose the option(s) to be included in their ideal support system.	As the group works through the checklist, emphasize the importance of having supportive reasons for each option chosen. The reasons should relate to desired student performance, student characteristics, and/or an analysis of the resource implications of the requirements outlined on Information Sheets #1, 2, and 3.
		6. Have the planning group complete the section of Information Sheet #4 dealing with "ideal" support system.	Help them formulate a reason for each decision, where they have not already done so.
		7. Guide the planning group in an analysis of your school system's present support system.	
		8. Have them complete the section of Information Sheet #4 dealing with "present" support system.	
		9. Help the planning group make an explicit comparison of their "ideal" and "present" support systems.	
		10. Guide them in drafting a set of improvement requirements based upon the results of the comparison.	
		11. Have the planning group screen the improvement requirements, separating genuine requirements from preferences.	
		12. Have the planning group complete Information Sheet #4, page 2-59.	Be certain that a master copy of Information Sheet #4 is completed.

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Improvement Requirements	Unit 2, pages 2-61 to 2-69. Information Sheet #5, page 2-69.	1. Have the planning group review the six step process for refining their improvement requirements which is described on page 2-61. Use the example provided on page 2-67 to illustrate the six steps.	Continue to refer the planning group to the example as they work to complete each step.
		2. Conduct a review of all improvement requirements identified by the planning group.	Examine all decisions recorded on Information Sheets #1, 2, 3, and 4, pages 2-17, 2-29, 2-43, and 2-59.
		3. Have the planning group summarize the improvement requirements they have identified.	Each individual's copy of Information Sheet #5, page 2-69, can be used for working purposes throughout the six step process.
		4. Conduct a group critique of the requirements, checking them for overlap, consistency, comprehensiveness.	
		5. Have the planning group make any changes in their improvement requirements suggested by their critique.	Suggest that they once again screen the requirements to distinguish preferences from genuine requirements.
		6. Ask the planning group to review the means of improvement described on pages 2-62 to 2-63, if they have not already done so.	Have them suggest other possible means of improvement not described in the text.
		7. Conduct a group discussion of possible means of improvement for each improvement requirement identified by the planning group.	Note that more than one means of improvement may be appropriate for a particular improvement requirement. Direct the planning group to combine closely related requirements which appear capable of being addressed through the same means of improvement. You may want to use a chalkboard or flip chart to focus the discussion.
		8. Help the planning group choose the most appropriate means of improvement for each requirement or set of closely related requirements.	

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Improvement Requirements (Continued)	Unit 2, pages 2-61 to 2-69. Information Sheet #5, page 2-69.	9. Explain the importance of revising each improvement requirement to facilitate the location of appropriate means of improvement.	
		10. Use the example provided in the text, page 2-64, to illustrate how their improvement requirements should be revised.	Ask them to identify (1) the kind and/or quality of improvement to be achieved and (2) the population(s) to be impacted in each instance.
		11. Help the planning group revise their improvement requirements.	Begin by separating single improvement requirements from sets of closely related requirements, Suggest that they work with the single requirements first and then revise the more complex sets of requirements.
		12. Ask the planning group to read page 2-65.	Explain that each factor listed can represent either an opportunity or a constraint or both.
		13. Conduct a group discussion of various opportunities and constraints related to specific improvement requirements.	Use a chalkboard or flip chart to focus discussion. As before, Information Sheet #5 can be used for working purposes.
		14. Have the group determine which of their improvement requirements are simply not feasible.	
		15. Have the planning group read the section on "action priorities," page 2-66.	
		16. Guide them in developing clear criteria for determining priorities.	Ask them to consider the criteria suggested in the text and to recommend others.
		17. Conduct an organized review of all feasible improvement requirements, applying the criteria and determining priorities.	Note that you have several options in proceeding: (1) to simply identify those requirements which are considered to be the most important and ignore those of lesser importance, or (2) to rank order all requirements in order of their importance.

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Improvement Requirements (Continued)	Unit 2, pages 2-61 to 2-69. Information Sheet #5, page 2-69.	18. Define for the planning group the concept of a "search." 19. Ask them to screen the improvement requirements which have been chosen as action priorities, pinpointing those which demand a search. 20. Have the planning group review and complete Information Sheet #5, page 2-69. Before completing Information Sheet #5, direct them to re-examine relevant portions of their refined need definition from Unit 1 as a final check on their improvement requirements.	Be certain that a master copy of Information Sheet #5 is completed.

UNIT 2

COMPLETION CHECKLIST

		Yes	No
1.	Has a written draft of your school system's improvement requirements (including requirements targeted for direct action as well as requirements targeted for search) been developed?	☐	☐
2.	Did the planning group review the need definition from Unit 1 before finalizing their improvement requirements?	☐	☐
3.	Has each improvement requirement been revised to reflect the means of improvement selected?	☐	☐
4.	Have opportunities and constraints related to each improvement requirement been identified?	☐	☐
5.	Has the planning group defined search priorities where means of improvement must be sought outside of the school system?	☐	☐
6.	If there are preferences associated with a specific search priority, have those preferences been described?	☐	☐
7.	Have the improvement requirements/search priorities been submitted for review by appropriate school system administrators, staff, etc.?	☐	☐
8.	Have sufficient copies of your search priorities (Information Sheet #5, page 2-69) been duplicated for use by the planning group working with Unit 3 and any other staff who will be involved in search activities?	☐	☐

UNIT 3

TASK DESCRIPTION

This task is a two stage task. First, it involves making plans for a search aimed at identifying means of improvement which match your school system's improvement requirements. Second, it involves conducting that search in accordance with those plans. The boundaries for the search are delimited in terms of the improvement requirement(s) the planning group established in Unit 2. A form which profiles the kind and quality of information to be gathered in the search is developed to standardize reporting. To insure that the search proceeds smoothly, two search tools – a common vocabulary and sources of information – are selected by members of the planning group.

Once definite plans for the search have been made, then members of the planning group and other participants examine the practical steps involved in conducting a search. Those who will conduct the search are alerted to possible problems they may encounter and acquainted with some possible solutions to those problems. Specific search procedures are established. Preparation and completion checklists for the various tasks are then used to assess progress in conducting the search.

COORDINATOR'S ROLE

Unit 3 offers you a number of options in terms of your own role as coordinator and in terms of the role(s) of planning group members. As coordinator, you should decide (1) which activities you want to complete on your own, (2) which activities you want to complete in conjunction with other members of the planning group, and (3) which activities the members of the planning group should complete by themselves on either a group or individual basis.

It is essential that all group members have an active role in determining the search boundaries, specifying the kinds of information to be collected, developing a search vocabulary, reviewing the search tasks, reviewing and/or establishing search procedures, and assessing search progress. You may want to delegate responsibility for developing the search report form to one or several members of the group. If you decide to do so, all group members should have an opportunity to review and suggest changes in the report form before they are asked to use the form. It is also possible to assign one or several members of the group responsibility for selecting search sources (sources of information to be employed in the search). All group members should then be given sufficient opportunity to review and discuss the sources selected, suggest additional sources, etc.

A variety of arrangements are possible for conducting the search. Having read through Unit 3, you are already aware that there are options in terms of individual and group responsibilities for specific search tasks (see page 77). You may decide to let the group negotiate their task assignments, or you may decide to assign tasks yourself. You may decide to let group members and other participants involved in conducting the search establish their own working procedures, or simply establish procedures yourself.

UNIT 3

PREPARATION CHECKLIST

	Yes	No
1. Have you duplicated copies of the improvement requirements information sheet (Unit 2, Information Sheet #5, page 2-69) for all members of the planning group?	☐	☐
2. Have you secured sufficient copies of the Unit 3 materials for group members and other participants?	☐	☐
3. If the materials are to be read in advance of your meeting, have you circulated copies to all members of the group in advance?	☐	☐
4. Are all group members aware of the agenda, date, time, and purpose of all Unit 3 meetings?	☐	☐
5. If group members are to familiarize themselves with the Unit 2 improvement requirements information sheet in advance of your meeting, have you circulated copies to them in advance?	☐	☐
6. Have you consulted with school system administrators in order to determine the resources which will be available to support Unit 3 search activities?	☐	☐
7. If special expertise is required, do you have a definite commitment from the individuals involved?	☐	☐
8. Have you clarified which other individuals and/or groups are to be involved in Unit 3 activities and the nature of their involvement?	☐	☐
9. Have those individuals and groups been contacted?	☐	☐
10. Have you prepared a brief orientation to Unit 3 activities for use with the planning group?	☐	☐

UNIT 3

PROCEDURES

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Introduction	Unit 3, page 3-1.	1. Tell members of the group to read the Introduction, page 3-1.	
		2. Review previous planning activities and the search priority to be addressed by the group.	
		3. Provide members of the group with an overview of the major steps involved in Unit 3.	Emphasize that they will be primarily concerned with planning the search. Trace the Information Sheets throughout the Unit to identify the major steps: (1) determining search boundaries, (2) specifying the kinds of information to be collected in the search, (3) developing the search report form, and (4) selecting search tools in the form of a search vocabulary and sources of information. Indicate the specific responsibilities of each group member if possible.
Determining Search Boundaries	Unit 3, pages 3-2 to 3-5. Information Sheet #1, page 3-5.	1. Have members of the planning group review the text on page 3-2 and the example on page 3-3.	Make certain that each member of the planning group has a copy of Information Sheet #5, page 2-69. Establish the level and type of resources available to support your search activities well in advance of your meeting with the group. It is important that the planning group understand resource limitations affecting the search, including time, funds, etc.
		2. Ask the group to discuss and refine the improvement requirement(s) chosen as their top search priority.	If the improvement requirements (Information Sheet #5, page 2-69) have not been ranked in order of priority, ask the group to rank them before proceeding. Explain the importance of preferences in collecting comparative information about alternative means of improvement.
		3. Have the group complete Information Sheet #1, page 3-5.	Be certain that a master copy of Information Sheet #1 is also completed.

UNIT 3

PROCEDURES

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Specifying Kinds of Information To Be Collected	Unit 3, pages 3-7 to 3-13. Information Sheet #2, page 3-13.	1. Have all group members read page 3-7.	
		2. Review with them the kinds of comparative information which may be collected in a search.	If only certain members of the group are to help design the report form, you should make that clear before proceeding.
		3. Work through the checklist on pages 3-8 to 3-11 with the group.	It is recommended that you check major topics of interest first (boxes) and then specific items (blanks). Encourage group members to add topics and items of interest which have not been included in the checklist. If any preferences have been identified by the planning group on Information Sheet #1, page 3-5, related information should be collected.
		4. Have the planning group complete Information Sheet #2, page 3-13.	Be certain that a master copy of Information Sheet #2 is also completed.
Developing the Search Report Form	Unit 3, pages 3-15 to 3-21. Information Sheet #3, page 3-21.	1. Ask the group to read pages 3-15 and 3-16.	
		2. Review with them the example of a search report form provided on pages 3-17 and 3-19.	
		3. Work with the group in drafting a report form for the information to be collected in the search.	The report form should cover all topics and items listed on Information Sheet #2, page 3-13. This activity may be performed by one or several individual members of the group.
		4. Critique the form and make necessary improvements before finalizing it.	If not all members of the group helped draft the report form, give them an opportunity to make suggestions for improvement of the form. Carefully review the contents and organization of the report form yourself.
		5. Have the planning group use Information Sheet #3, page 3-21, for finalizing the report form.	Be certain that a master copy of Information Sheet #3 is completed.

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Selecting Search Tools	Unit 3, pages 3-23 to 3-51. Information Sheets #4 and #5, pages 3-27 and 3-51.	1. Define the terms "search vocabulary" and "search source."	
		2. Explain that they will be key tools for conducting the search.	
		3. Explain the importance of a good vocabulary in locating appropriate programs, materials, and the like.	You may want to have the group read page 3-23.
		4. Have all members of the group review the example on page 3-25 before developing their own search vocabulary.	
		5. Work with the group in developing a search vocabulary.	You should have one or several of the sources listed on page 3-24 available for use by the group. Use a chalkboard or flipchart to record the vocabulary suggested.
		6. Have the planning group complete Information Sheet #4, page 3-27.	Be certain that a master co[illegible] of Information Sheet #4 is completed.
		7. Review Unit 3 Information Sheets #1, 2, and 3, pages 3-5, 3-13, and 3-21, with the group.	
		8. Discuss how information needs and resource limitations can help the group select appropriate sources of information to be used in their search.	You may want to use the example provided on pages 3-47 and 3-49 for purposes of illustration.
		9. Show group members how to use the charts for selecting search sources (pages 3-30 to 3-46).	Explain that each chart lists (1) general type of source, (2) a specific example of that type, and (3) the general advantages and disadvantages of using that type of source. Call their attention to the key used to indicate whether the type of source is an excellent, a good, or only an acceptable choice in terms of specific resource limitations.
		10. Discuss with them the resource limitations affecting their search, e.g., time, funds, etc.	Ask the planning group to suggest additional resource limitations which should influence their choice of search sources.

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Selecting Search Tools (Continued)	Unit 3, pages 3-23 to 3-51. Information Sheets #4 and #5, pages 3-27 and 3-51.	11. Ask group members to use the charts to select types of sources to be employed in the search.	You can assign certain members responsibility for examination of the charts and have them recommend particular types of sources for use in the search. You can also have the group as a whole work with the charts. Suggest that the the charts be skimmed to expedite progress. Stress the importance of their considering both information requirements and resource limitations in making their selections.
		12. Have the planning group complete Information Sheet #5, page 3-51.	Be certain that a master copy of Information Sheet #5 is completed.
Conducting the Search	Unit 3, pages 3-53 to 3-60.	1. Have all group members and other participants who will play a role in conducting the search review the tasks discussed in pages 3-54 to 3-57.	You should first summarize the five tasks for them, and introduce them to the **Guide to Alternatives** or any other source collections and/or training packages you want to make available to them at this time. See page 3-54.
		2. Be certain to discuss the advantages and disadvantages of various ways of proceeding.	Specific advantages and disadvantages of different ways of proceeding are discussed on the next page. Try to have the group reach agreement about those most suitable for your search.
		3. Explore the possibility of using a file card system to record helpful sources and of establishing a vertical file to contain working report forms and other related materials (page 3-55).	
		4. Determine whether the screening of means of improvement should take place on an individual or a group basis.	
		5. Discuss ways in which contradictions, inaccuracies, and bias can be avoided in the process of collecting information.	

TOPIC	RELATED MATERIALS	DIRECTIONS	SUGGESTIONS
Conducting the Search (Continued)	Unit 3, pages 3-53 to 3-60.	6. If you are going to establish search procedures yourself, have them carefully developed well in advance of your meeting. Distribute typed copies of those procedures for review by all group members and other participants and negotiate modifications in procedures with them.	The procedural decisions to be made are outlined on the next page. It is essential that the group has a clear and acceptable set of search procedures before they actually begin to conduct the search.
		7. Describe the purpose of the search progress checklist to all group members and participants.	Have them review the checklist and modify it to suit their own needs.
		8. Direct each individual involved in conducting the search to review the preparation and completion checklist(s) for each task to be performed prior to beginning the task.	

UNIT 3

WAYS OF PROCEEDING

TELEPHONE CALL	A quick and direct means of contacting certain sources of information, such as a publisher or intermediate service agency. A telephone call often gives you an opportunity to clarify and refine your particular information needs through person to person dialogue. If the source cannot provide the particular information sought, you might still be directed to other valuable sources. Of course, much of the success of telephone contact depends upon whether you can reach knowledgeable persons. It can also be quite time-consuming. The cost of telephone contact also varies depending on the distance between the two parties involved.
LETTER OF REQUEST	Can sometimes provide you with detailed written information and is relatively less costly than telephoning. A letter does not, however, provide an opportunity for direct dialogue about specific information needs. It may also take a longer time to get a response from the source. The quality of response is also highly dependent upon your ability to communicate your information needs in written form. When you are not satisfied with the information provided, follow-up letters are often necessary.
LITERATURE SEARCH	Provides a means of access to information which is to some extent independent of geographic location. A literature search can result in thorough and comprehensive coverage of sources on a specific or general topic. It can lead you to both primary and secondary sources of information. It is also relatively inexpensive. But a literature search can be time-consuming, requires a certain amount of skill or expertise and a fairly large number of staff for an in-depth search.
PERSONAL CONTACT OR OBSERVATION	Includes attendance at conferences or conventions, visits to demonstration sites, etc. Person to person inquiry, clarification and tailoring of information to individual needs are possible with this approach. Personal contact can provide opportunities for first-hand observation unaffected by others' evaluations. It fosters heightened awareness of possible options and can result in referrals to primary sources of information. Costs may be prohibitive, however, since travel, compensation, and released time for a number of staff may be involved.
SUBCONTRACTING	A possible route to take when you do not have expertise or experience in conducting a search but have enough money to hire an outside agency to do it for you. Subcontracting may give you the particular information you need but depends a great deal on the expertise and evaluative judgment of personnel associated with the subcontracting agency. It may also be quite expensive and time-consuming. Finally, such services may not be accessible or available when needed.

UNIT 3

SEARCH PROCEDURES

PROCEDURAL DECISIONS	OPTIONS
TASK SEQUENCE	1. All tasks completed in sequence for single means of improvement. 2. Some tasks combined for all means of improvement (e.g., identifying and consulting sources, screening means of improvement).
WORK MODE	1. Group members can work on an individual basis. 2. Group members can work together as a group.
RESPONSIBLE PERSONNEL	1. Coordinator can assign staff on the basis of special expertise, experience, etc. 2. Staff can decide themselves which tasks they want to perform.
TIMELINES	1. Coordinator can establish timelines for completion of each task and/or for submission of progress reports. 2. Staff can negotiate timelines with coordinator.
PROBLEM-SOLVING/ PROGRESS UPDATES	1. Coordinator can schedule regular problem-solving and progress update sessions in advance. 2. Staff can request problem-solving and progress update sessions as needed.

UNIT 3

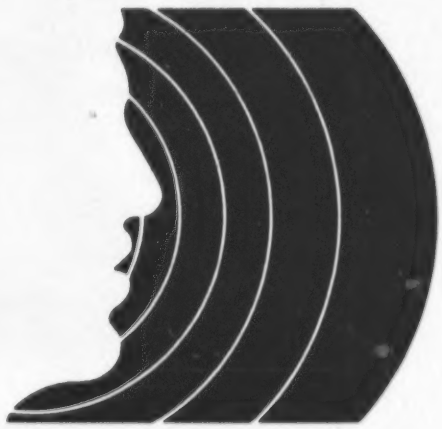
COMPLETION CHECKLIST

		Yes	No
1.	Have a reasonable number of means of improvement compatible with your school system's improvement requirement(s) been identified?	☐	☐
2.	Do you have a completed report form for each means of improvement?	☐	☐
3.	Does each report form contain all descriptive and comparative information to be collected?	☐	☐
4.	Were the sources used to collect that information valid and reliable sources of information?	☐	☐
5.	Have all contradictions and/or ambiguities and/or inaccuracies in the information collected been resolved?	☐	☐
6.	Has all information been checked for possible bias?	☐	☐
7.	Do you have records of contacts made in securing the information included on the report form for each means of improvement?	☐	☐
8.	Does a file of supplementary information, sample materials, etc., exist for each means of improvement?	☐	☐
9.	Are those sample materials and that supplementary information cited on the report form for each means of improvement?	☐	☐

GUIDELINES FOR COMMUNICATION

It is important that you be able to communicate with others who will not be immediately involved in your planning activities. Some individuals and groups can strongly influence the direction of the improvement effort and its ultimate success or failure. Others will have direct responsibility for implementing the programs selected. Below is a list of various audiences with whom you may want to communicate. First, you should clarify your purpose(s) in communicating with them. Do you want to orient, to inform, to persuade?

- Superintendent
- Curriculum Selection Committee
- Board of Education Members
- Central Office Administrative Staff
- Curriculum Coordinators
- Principals
- Supervisors or Department Heads
- Teachers
- Parents
- Community Members
- Students
- Others (Specify)



Second, you should determine what content is to be communicated. What does your audience need to know? What kinds of information will make your audience most open to communication? Deciding what your audience(s) **need to know** about the planning effort should not be too difficult. Determining what kinds of information will make your audience(s) **receptive** may be a more demanding task. Focus on their expressed interests and continuing concerns. Consider the accepted norms and values of the social system to which they belong. Both can provide you with helpful insights.

Immediately below you will find a series of possible topics related to your planning activities. Which suggest content relevant to your purpose(s) and your audience(s)?

UNIT 1: STUDENT NEEDS

____ Desired Student Performance
____ Current Student Performance
____ Sources of Data
____ Measurement Criteria
____ Student Populations

UNIT 2: IMPROVEMENT REQUIREMENTS

____ Curriculum Content
____ Content Sequencing
____ Instructional Approach
____ Support Systems
____ Means of Improvement
____ Opportunities and Constraints
____ Action Priorities

UNIT 3: SEARCH

____ Search Priorities
____ Search Plans and Procedures
____ Search Findings

Third, you should decide which media will most effectively communicate your content.

- Formal Written Docment
- Personal Presentation
- Presentation Using Audiovisual Aids
- Audiovisual Presentation with Commentary
- Question and Answer Session
- Published Articles
- Interview
- Internal Memoranda

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Finally, having chosen a medium of communication, you will want to use it effectively. Aim to be as clear, precise, simple, coherent, and brief as possible in expressing your content. Here are some specific suggestions:

	DO	DO NOT
CLEAR	Use a consistent vocabulary.	Use jargon or vary your vocabulary too much.
	Provide examples or analogies when discussing a difficult or abstract idea.	Use overextended examples or comparisons.
	Relate all details to a central idea.	Develop more than one main idea at a time.
PRECISE	Check the accuracy of all facts and figures.	Confuse by introducing too many facts and figures.
	Be alert for possible personal bias or prejudices.	Sacrifice human interest to strictly factual "objectivity."
SIMPLE	Identify what is most essential.	Try to include everything.
	Build on what your audience already knows/wants to know in presenting your information.	Attempt to impress your audience with abstract or needlessly complex discussions.
COHERENT	Establish relationships among ideas before beginning.	Depart from the mainstream of ideas to pursue an interesting tangent.
	Create repeated logical links to emphasize those relationships.	Assume that your audience can infer what you have not made explicit for them.
BRIEF	Summarize, abstract, paraphrase, use summary diagrams, charts and tables wherever possible.	Employ direct quotation except for emphasis.
	Reference supplementary information.	Use repetition in place of idea development.

MASTER COPY
INFORMATION SHEETS

UNIT 1
UNIT 2
UNIT 3

UNIT 1

INFORMATION SHEET #1

TYPES OF STUDENT PERFORMANCE

Directions: Check the type(s) of desired student performance which appear to be relevant to your school system's student needs. For each type of performance checked, describe the performance goal(s) your school system wants its students to achieve.

☐ *INFORMATION RECALL* — *Students should:*

☐ *BASIC SKILLS* — *Students should:*

☐ *HIGHER ORDER PROCESSES* — *Students should:*

☐ *SUPPORT SKILLS* — *Students should:*

☐ *ATTITUDES* — *Students should:*

☐ *VALUES* — *Students should:*

☐ *PERSONAL DEVELOPMENT* — *Students should:*

☐ *SOCIAL DEVELOPMENT* — *Students should:*

INFORMATION SHEET #2

PERFORMANCE STANDARDS

Directions: First, define a set of representative student behaviors for each type of performance identified on Information Sheet #1, page 1-33. Then return to page 1-39. Second, list sources of data which are appropriate for assessing student achievement of those behaviors. Then return to page 1-41. Third, specify measurement criteria for each of the sources of data listed.

Student Behaviors	Sources of Data	Measurement Criteria

INFORMATION SHEET #3

STUDENT POPULATIONS

Directions: Review the performance standards described on Information Sheet #2, page 1-45, and discuss the characteristics of various segments of your overall student population. Then decide which of your performance standards are appropriate and reasonable for the different groups, subgroups, and/or individuals within your overall student population. Use the space provided below to define the student populations expected to meet different performance standards.

Students Expected to Meet Standards (Number, Age/Grade/Educational Level)	Characteristics

INFORMATION SHEET #4

CURRENT STUDENT PERFORMANCE

Directions: Synthesize available data on current student performance in the space provided below. First, cite all sources of data consulted. Second, define the current student behaviors sampled by each source of data and the measurement criteria used to assess current levels of student performance where the behaviors and criteria differ from those selected for desired student performance on Information Sheet #2, page 1-45. Third, describe the current performance of each student population in terms of those behaviors and criteria.

PERFORMANCE STANDARDS			STUDENT POPULATIONS		
Sources of Data	Student Behaviors	Measurement Criteria	Students Meeting Standards	Students Not Meeting Standards	Characteristics

INFORMATION SHEET #5

NEED DEFINITION

DESIRED STUDENT PERFORMANCE

TYPES OF PERFORMANCE	PERFORMANCE STANDARDS			STUDENT POPULATIONS	
	Student Behaviors	Sources of Data	Measurement Criteria	Students Expected to Meet Standards	Characteristics

INFORMATION SHEET #5 (Continued)

NEED DEFINITION

CURRENT STUDENT PERFORMANCE

	PERFORMANCE STANDARDS		STUDENT POPULATIONS		
Sources of Data	Student Behaviors	Measurement Criteria	Students Meeting Standards	Students Not Meeting Standards	Characteristics

INFORMATION SHEET #5 (Continued)

NEED DEFINITION

PRIORITY OF STUDENT NEEDS

UNIT 2

INFORMATION SHEET #1

CURRICULUM CONTENT

Directions: Review your school system's need definition, particularly student behaviors and any information related to student characteristics. Then discuss which type(s) of content would be ideal for promoting desired student performance. Document your decisions in the space provided below and provide reasons for your decisions.

Describe the type(s) of content emphasized in your present curriculum. Then compare the ideal type(s) of content selected with the type(s) of content emphasized in your present curriculum. Where gaps exist, identify the specific kinds of improvement which are required. Note other improvements which represent strong preferences, but are not considered essential.

IDEAL CONTENT	REASONS

PRESENT CONTENT

IMPROVEMENT REQUIREMENTS	PREFERENCES

INFORMATION SHEET #2

CONTENT SEQUENCING

Directions: Review your school system's need definition, particularly student behaviors and any information related to student characteristics. Then discuss which types of sequencing principles would be ideal for promoting desired student performance and provide reasons for your decisions.

Describe the sequencing principles associated with the content of your present curriculum. Then compare the ideal sequencing principles selected with the sequencing principles associated with the content of your present curriculum. When gaps exist, identify the specific kinds of improvement which are required. Note other improvements which represent strong preferences, but are not considered essential.

IDEAL CONTENT SEQUENCING		REASONS
Types of Content	Sequencing Principles	

PRESENT CONTENT SEQUENCING	
Types of Content	Sequencing Principles

IMPROVEMENT REQUIREMENTS	PREFERENCES

INFORMATION SHEET #3

INSTRUCTIONAL APPROACH

Directions: Select the instructional strategies which are most critical to your ideal instructional approach. Then indicate the specific options which you consider to be appropriate for promoting desired student performance. Provide a rationale for each decision based upon desired student performance, student characteristics, and/or the implications of your previous planning decisions (Information Sheets #1 and #2, pages 2-17 and 2-29).

IDEAL INSTRUCTIONAL APPROACH	RATIONALE	PRESENT INSTRUCTIONAL APPROACH
Instructional Strategies		Instructional Strategies

IMPROVEMENT REQUIREMENTS	PREFERENCES

INFORMATION SHEET #4

SUPPORT SYSTEM

Directions: Describe the strategies and options which would constitute an ideal support system for instruction. Then provide a rationale for each decision based upon desired student performance, student characteristics, and/or the resource implications of your previous planning decisions (Information Sheets #1, #2, and #3, pages 2-17, 2-29, and 2-43). Finally, describe the strategies and options associated with your school system's present support system. Identify specific improvement requirements and preferences in the space provided below.

IDEAL SUPPORT SYSTEM	RATIONALE	PRESENT SUPPORT SYSTEM
Support System Strategies		Support System Strategies

IMPROVEMENT REQUIREMENTS	PREFERENCES

INFORMATION SHEET #5

IMPROVEMENT REQUIREMENTS

Directions: Use column 1 of the chart to summarize your improvement requirements. Then return to page 2-62. Use column 2 of the chart to indicate the means of improvement selected for each requirement in column 1. Then return to page 2-63. Use column 3 of the chart to revise your improvement requirements. Then return to page 2-65 Use column 4 of the chart to specify opportunities and constraints associated with each of your revised requirements. Then return to page 2-66. Use column 5 of the chart to indicate which improvement requirements are action priorities. Then return to page 2-66. Use column 6 of the chart to indicate which of the improvement requirements targetted for action demand a search for means of improvement.

(1)	(2)	(3)	(4)		(5)	(6)
IMPROVEMENT REQUIREMENTS	MEANS OF IMPROVEMENT	IMPROVEMENT REQUIREMENTS (REVISED)	OPPORTUNITIES	CONSTRAINTS	ACTION PRIORITIES	SEARCH

UNIT 3

INFORMATION SHEET #1

SEARCH BOUNDARIES

Directions: Set boundaries for your search by defining (1) the means of improvement, (2) the specific improvement requirement(s) for which the means of improvement has been selected, (3) any related opportunities and constraints, and (4) any related preferences (i.e., elements which are highly desirable, but not absolutely required for improvement).

MEANS OF IMPROVEMENT:

IMPROVEMENT REQUIREMENT(S):

OPPORTUNITIES:

CONSTRAINTS:

PREFERENCES:

INFORMATION SHEET #2

KINDS OF INFORMATION TO BE COLLECTED

Directions: Specify the kinds of information you want to collect in your research. Topics for general descriptive information are already outlined for your convenience. If there is any other descriptive information you want to collect, please add it now. You should also enter any comparative information topics or items you have checked on pages 3-8 to 3-11 under Section II. The topics and/or items should be arranged in logical order.

I. **Descriptive Information**

- A. Full Title of the Means of Improvement
- B. Date of Development
- C. Developer(s) and Location
- D. Contact Person, Telephone Number, and Address
- E. Distributor and Location
- F. Availability
- G. Cost
- H. Brief Abstract
- I. Other (You specify)

II. **Comparative Information** *(Enter topics and items checked on pages 3-8 to 3-11).*

INFORMATION SHEET #3

SEARCH REPORT FORM

Directions: Type or attach a copy of the report form to be used in your search. Be certain to include all topics and important items listed on Information Sheet #2, page 3-13.

INFORMATION SHEET #4

SEARCH VOCABULARY

Directions: Develop a search vocabulary which will help you locate appropriate means of improvement. You can consult the references suggested on the previous page for assistance.

INFORMATION SHEET #5

SEARCH SOURCES

Directions: Discuss the information you want to collect and any resource limitations affecting your search. Then use the charts on pages 3-30 to 3-46 to select appropriate sources of information for your search. List the type(s) of sources selected in the space provided below and cite your reasons for selecting those types.